THE AMERICAN ENERGY INITIATIVE, PART 3: TRANSPARENCY IN REGULATORY ANALYSIS OF IMPACTS ON THE NATION ACT OF 2011

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

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SUBMITTED MATERIAL

THE AMERICAN ENERGY INITIATIVE, PART 3: TRANSPARENCY IN REGULATORY ANALYSIS OF IMPACTS ON THE NATION ACT OF 2011

THURSDAY, APRIL 7, 2011

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND POWER,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 1:07 p.m., in room 2322 of the Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Members present: Representatives Whitfield, Sullivan, Shimkus, Walden, Terry, Burgess, Bilbray, Olson, McKinley, Gardner, Griffith, Rush, Inslee, Matheson, Green, Capps and Waxman (ex officio).

Staff present: Allison Busbee, Legislative Clerk; Cory Hicks, Policy Coordinator, Energy and Power; Ben Lieberman, Counsel, Energy and Power; Heidi King; Mary Neumayr, Counsel, Oversight/Energy; Jackie Cohen, Democratic Counsel; Greg Dotson, Democratic Energy and Environment Staff Director; Caitlin Haberman, Democratic Policy Analyst; and Alexandra Teitz, Democratic Senior Counsel, Environment and Energy.

OPENING STATEMENT OF HON. ED WHITFIELD, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. WHITFIELD. We will call today's hearing to order. The hearing is entitled "The American Energy Initiative." This is actually the third hearing in a series that we are having on the broad discussion examining the domestic energy resources in our diverse energy portfolio.

Our most recent hearing on Tuesday focused on China, and we noted China's economic progress during the past 30 years has been possible because of a lot of reasons but one reason that they have been really productive is that they are using an affordable, secure and abundant fuel source, and that is coal. It is not the only reason but one reason, and they are using a lot of coal. China has become the largest energy consumer in the world, and this has helped China to become the United States' chief economic competitor in the global marketplace.

Unfortunately, in the United States, the use of coal and other fossil fuel sources are being threatened by the Environmental Protection Agency. Recognizing that they do have a responsibility to

protect health, I think we are very proud that in America we have the highest quality air anywhere in the world, but this EPA has been one of the most aggressive. They have many regulations in the pipeline and I think it is essential that we try to have a balanced approach as we look at new regulations. It is likely that some of these rules that are coming down, whether it be the Utility MACT, the Boiler MACT, the greenhouse gas legislation, the air transport rules, whatever it will, we have talked to a lot of utilities, we have talked to a lot of businesses, and we know that there will be some shutdowns of some electricity and manufacturing facilities as a direct result of these rules. Others will be required to make costly upgrades to their units because they simply cannot comply on the aggressive timelines.

And then another problem for many groups is just the uncertainty that is out there because of what will be required.

I will say that EPA, for example, the utility rule proposed by EPA last month, is estimated to cost the electricity-generating industry $10.9 billion a year. EPA predicts that this rule alone will increase electricity prices as much as 7 percent in some parts of the Nation. The air transport rule, they are expecting that that will increase electricity costs in some areas up to 3 percent. And I could go on and on.

But one of the specific reasons that I am delighted we are here today is because of this uncertainty of the EPA and all the regulations that they are moving, my colleagues, Representative Sullivan of Oklahoma and Congressman Matheson, have drafted a legislation called the Transparency in Regulatory Analysis of Impacts on the Nation Act. This requires a cumulative analysis of certain rules and actions that are either issued or planned by the Environmental Protection Agency and the forming of an interagency task force.

[The prepared statement of Mr. Whitfield follows:]

PREPARED STATEMENT OF HON. ED WHITFIELD

Today's hearing is the third day of our series on the American Energy Initiative. The initiative represents a broad discussion that examines the domestic energy resources in our diverse energy portfolio. These resources strengthen our national security, create jobs, and make energy more affordable in our homes and for our businesses.

On Tuesday, we noted that China's economic progress during the past 30 years has been possible because China is using an affordable, secure, and abundant fuel source- coal. China has become the largest energy consumer in the world, and this has helped China to become the United States' chief economic competitor in the global marketplace.

Unfortunately, in the United States, the use of coal and other cheaper fuel sources are being threatened by the Environmental Protection Agency who have issued a number of rules that require a large investment from the energy and manufacturing sectors, without fully understanding the economic impact and the potential benefits of their rules.

Because of the uncertainty that the EPA is causing with these regulations many of which were issued as a result of court cases, I am pleased that my colleagues on the subcommittee, Representatives Sullivan and Matheson, have drafted the Transparency in Regulatory Analysis of Impacts on the Nation Act (TRAIN Act), which would require a cumulative analysis of certain rules and actions that are either issued or planned by the Environmental Protection Agency (EPA).

It is likely that these rules will result in the shutdown of some electricity and manufacturing facilities. Others will be required to make costly upgrades to their units because they simply cannot comply on the aggressive timelines.

EPA has begun, one-by-one, to look at some of the impacts of these regulations, and what they have found is startling:

The Utility Rule proposed by EPA last month is estimated to cost the electricity-generating industry $10.9 billion dollars a year. EPA predicts that this rule alone will increase electricity prices as much as 7 percent in some parts of the Nation.

Later this year, EPA expects to issue the Transport Rule, imposing a federally enforceable plan to further regulate electricity generating facilities. EPA estimated that this rule will cause electricity prices to increase by another 3 percent.

EPA also proposed to revise the new Ozone standard that was just issued in 2008. EPA estimates that revising the Ozone rule could cost $90 billion dollars, and that this rule could also increase the price of electricity.

Only a few months ago, EPA issued new National Ambient Air Quality Standards for Sulfur Dioxide, emitted from coal-burning power plants, and also for Nitrogen Dioxide. Soon, EPA will be reviewing revisions to the standard for fine particulate matter. These rules could also increase energy prices.

The analysis by EPA did not look at the cumulative impact of the rules, nor did it look at how these rules will affect global competitiveness, jobs in all sectors of the economy, and the prices that consumers pay for American-made products.

Today, we will explore the importance of analyzing these rules together to understand how they will impact our businesses, our consumers, and agriculture, and our global competitiveness.

If we hope to continue to fuel our economy, to light our homes and to build American products, we must understand the combined impact of these many regulations.

I thank the witnesses for their willingness to join us this afternoon. I look forward to their testimony and answers to questions. With that I yield the balance of my time.

Mr. WHITFIELD. At this time I would like to recognize for a minute-and-a-half Mr. Sullivan, who is one of the authors of this legislation.

Mr. SULLIVAN. Thank you, Chairman Whitfield. Thank you for holding this important hearing on a bipartisan discussion draft legislation, the Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011, which I will soon introduce along with my colleague, Jim Matheson, to address the cumulative costs of 10 economically significant EPA regulations and actions.

Many of the EPA's pending regulations and actions will cost our Nation billions, impacting everything from energy reliability, jobs, manufacturing and global economic competitiveness of the United States. The TRAIN Act will conduct an in-depth economic analysis so Congress and the American people can fully understand how the EPA's regulatory train wreck will impact our economy. In fact, eight of the EPA's proposed regulations cost a minimum of $1 billion to the U.S. economy. The time to address the full economic burden of these regulations is now.

Specifically, the TRAIN Act would require a federal interagency analysis of the cumulative impact of certain rules and actions of the Environmental Protection Agency on global economic competitiveness, energy and fuel prices, and the reliability of U.S. bulk power supply. It would also look at the impacts of these regulations on State and local governments, and jobs. Under this legislation, the interagency committee, not just EPA, will analyze the cumulative impacts of 10 economically significant rules and actions issued by the EPA. This analysis will help Congress and federal agencies develop a better understanding of how these regulatory policies are impacting America's economy as a whole.

What will these regulations cost? EPA doesn't know and has failed to conduct a study of the overall cumulative costs of many of their regulations together, which is why this legislation is so important. We desperately need an honest accounting of EPA's regulations, which this legislation will accomplish.

I look forward to hearing the testimony of our witnesses today and I yield back the balance of my time.

Mr. WHITFIELD. Thank you, Mr. Sullivan. At this time I recognize the gentleman from Illinois, Mr. Rush, for his opening statement.

OPENING STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. RUSH. Thank you, Mr. Chairman, and I want to thank all the witnesses for being here this afternoon.

Mr. Chairman, we know that since the inception of the Clean Air Act, opponents of the bill have been exaggerating the cost of implementing the regulations associated with the bill while downplaying the benefits that the new rules would bring. I am afraid that today's hearing focus on the TRAIN Act may yet be another example of this type of shoddy accounting and shoddy performance.

This bill would highlight the costs of implementing certain EPA rules but does not take into account all of the benefits of these regulations including enhanced public health, increased job productivity or lives saved. This bill would also not take into account the positive impacts that EPA regulations have had on our economy including spurring additional research and development of clean energy technologies, instituting higher fuel efficiency standards and helping make the country less dependent on foreign oil.

Unfortunately, for many of my colleagues, if the benefits of a regulation cannot be monetized such as lives saved or job loss prevented, then they are written off as having no economic value. At this point, I am not sure that this bill as written would really give an accurate cost-benefit analysis of EPA regulations. The Office of Management and Budget examined 10 Clean Air Act regulations finalized in 2008, 2009, and 2010 and concluded that all 10 had benefits that exceeded cost by a radio of seven to one on average.

During debate over the Clean Air Act, there were dire warnings that environmental regulations would kill jobs and lead to outsourcing overseas. Clean Air Act opponents falsely predicted that electricity prices would skyrocket if the 1990 Clean Air Act Amendments were passed when in fact electricity prices actually declined in the decade following 1990 by approximately 18 percent. While today we will hear the EPA regulations will cripple our economy and destroy our manufacturing industry, the U.S. Census Bureau conducted an annual survey of the U.S. manufacturing sector and found that pollution abatement operating costs were only 0.4 percent on average of overall manufacturing costs including not just air pollution controls but all over abatement costs combined.

Peer-reviewed articles in top economics journal find little evidence that environmental regulations have dampened U.S. competitiveness or led to outsourcing. In fact, I must point out that EPA implementation of the Clean Air Act and its accompanying amendments has been one of the most successful and bipartisan environmental laws in American history. Additionally, EPA implementation of the Clean Air Act has been a stimulus to our economy with estimates that it has generated as much as $300 billion of revenue and $44 billion in exports while supporting close to 1.7 million American jobs by the year 2008. When both direct employment

and indirect employment are taken into account, the environmental protection industry is estimated to have created a range of 3.8 million to 5 million new jobs.

Promoting cleaner technology through EPA regulations has the benefit of protecting our citizens with cleaner air while also creating jobs and investments for our economy.

So Mr. Chairman, I look forward to today's hearing and debate, and I would reserve judgment on this bill with hope that we are able to strengthen it moving forward. With that, I yield back the balance of my time.

Mr. WHITFIELD. Thank you, Mr. Rush. At this time I would recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. Thank you, Mr. Chairman.

I think the basic premise of what we are trying to do is accept the premise that when you add regulations, you do affect jobs, and you need to balance those based upon the environmental impact but there will be a job impact, and for those who live in southern Illinois, we have yet to recover from the 1992 Clean Air Act Amendments.

Now, I have talked about this numerous times. We can debate the beneficial aspects of the Clean Air Act on toxic emittants. What our debate now is today is an overly aggressive EPA that is going further than is needed to protect public health and severely impacting jobs. I have a slide up here which is the impending train wreck, and so that is why I support the TRAIN Act to stop the impending train wreck. Now, this is just for electricity generation, and in 8 years, here is what is coming down the track of new rules for ozone, new rules for nitrous oxide, a new transport rule, cooling tower or water, particulate matter, ash, mercury, carbon dioxide. Does anyone really believe that this does not impact jobs and does anyone really believe that when you have the multitude of regulations that are coming down simultaneous—the President has now agreed that it does. In fact, his Executive Order which he submitted on January 18, 2011, says that all agencies must take into consideration the cumulative regulations on cost and the effects on jobs.

We will submit to you that the EPA has not done that. We will submit to you that there hasn't been good interagency review on any of these things and we will continue to raise this debate that as you increase the regulatory burden—now, I will defer to some of my Democratic colleagues who will say yes, we are going to create government jobs, we are going to create more inspectors, we are going to create—they are not going to create private sector jobs. And remember, it is the private sector that funds the public sector. So we can grow government jobs all we want but as the budget debate that we are having today is we can no longer grow government. We really have to inspire the private sector to invest capital, create jobs and create wealth in this country so we can solve the problems of this Nation.

This impending train wreck is real. This is not fictional. No one has made this up. These are all the regs that are coming down the

pike right now, and if we are to believe the President of the United States, he is starting to understand that. And now we just have to get his agencies to understand that. That is the importance of this bipartisan piece of legislation that I hope we continue to have hearings on and move to the floor, because as I have said numerous times, and I didn't bring my placard of the coal miners who lost their jobs in the last round of the Clean Air Act Amendments, that one mine of 1,000 miners closed never to reopen, never to reopen. It is closed today and that rural community, small town, has never recovered from the Clean Air Act Amendments of 1992.

So I would say that it is very important to make sure that we continue to have this debate of the cost-benefit analysis and the importance about this debate in this hearing is the cumulative effect of all these aspects, this train wreck of eight different rules and regulations specifically targeting coal, electricity generation by coal, raising energy costs, killing our coalmines, making energy costs higher.

With that, I appreciate Mr. Whitfield giving me the time and I yield back the balance of my time.

Mr. WHITFIELD. Thank you. At this time I recognize the gentleman from California, Ranking Member Mr. Waxman for 5 minutes.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you very much, Mr. Chairman.

The legislation before us today has a worthwhile purpose. We should always try to understand as fully as possible the ramifications of federal laws and regulations. Where regulations have a cumulative impact, that should be understood as well.

But it is important that we recognize the potential costs of overanalysis. We can reach a point where the cost to the taxpayers of additional analysis exceeds its value. Our goal should be to strike the right balance. We must also ensure that any analysis we require can be credibly executed. Ideally, we may want to know the effect of a proposed rule far into the future, but that may simply be too speculative an exercise to add value to the decisionmaking. And we need to make sure any analysis is fair and objective. We can't look at just the costs of federal regulation without considering its benefits, just as we wouldn't look at only the benefits without considering the costs.

As we consider this proposal from these perspectives, I want to flag several issues. From a practical point of view, we need to make sure this bill is workable. In its current form, the legislation asks 12 Administration officials and one industry representative to collect and analyze information about actions that may or may not be taken by State and local governments, including 110 State and local permitting agencies, and project the impacts of those actions 20 years into the future. They are supposed to do this without staff, without the authority to collect information, and within 30 days.

Another issue to flag is balance. The draft requires an extensive analysis of regulatory costs, but we need to understand the benefits

as well so Congress and the public get a balanced assessment of the value of the regulations. Further, we need to be mindful not to duplicate what is already being done. For every final rule covered by this act, the EPA has prepared a Regulatory Impact Analysis to satisfy the requirements of OMB policy, executive orders, and statutes including the Administrative Procedure Act, the Paperwork Reduction Act, the Regulatory Flexibility Act and the Small Business Regulatory Enforcement Fairness Act. We need to make sure we are not requiring a redundant analysis.

Finally, this legislation creates new requirements for the executive branch without providing a specific authorization. It also does not offset these new requirements by relieving the agencies of other offsetting obligations.

These are some of the issues that will be on my mind as we consider this bill today and in the weeks ahead. I look forward to hearing from today's witnesses and I hope this legislation can be improved through the committee process.

Thank you, Mr. Chairman. I yield back my time.

Mr. WHITFIELD. Thank you, Mr. Waxman. And at this time I am going to introduce the panel of witnesses and we are going to start with Mr. Cauley, who will be first. But before we do that, I do want to introduce the panel and thank you again for being with us to help us analyze where we are today.

First, we have Mr. Gary Cauley, President and CEO, North American Electric Reliability Administration. Second, Mr. Eric Schaeffer, Executive Director of the Environmental Integrity Project. Third, we have Mr. Mark Bailey, who is the President and CEO of Big Rivers Electric Corporation. Fourth, we have Mr. Timothy Hess, who is the Division Vice President of Glatfelter. We have Dr. Robin Ridgway, who is the Director of Environmental Health, Safety and Regulatory Compliance at Purdue University. Sixth, we have Ms. Rena Steinzor, who is the President of the Center for Progressive Reform, and then seventh, we have Mr. Scott Segal, who is the Director of the Electric Reliability Coordinating Council.

So thank you all for being with us. Each one of you will be introduced for a 5-minute statement, and there is a little panel on the table there which hopefully you can see. It will show you a yellow light when you have a minute left and red when your time is expired.

So Mr. Cauley, you are recognized for 5 minutes for your opening statement.

STATEMENTS OF GERRY CAULEY, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NORTH AMERICAN ELECTRIC RELIABILITY ADMINISTRATION; ERIC SCHAEFFER, EXECUTIVE DIRECTOR, ENVIRONMENTAL INTEGRITY PROJECT; MARK A. BAILEY, PRESIDENT AND CHIEF EXECUTIVE OFFICER, BIG RIVERS ELECTRIC CORPORATION; TIMOTHY R. HESS, DIVISION VICE PRESIDENT, GLATFELTER; ROBIN MILLS RIDGWAY, DIRECTOR OF ENVIRONMENTAL HEALTH, SAFETY AND REGULATORY COMPLIANCE, PURDUE UNIVERSITY; RENA STEINZOR, PRESIDENT, CENTER FOR PROGRESSIVE REFORM; AND SCOTT SEGAL, DIRECTOR, ELECTRIC RELIABILITY COORDINATING COUNCIL

STATEMENT OF GERRY CAULEY

Mr. CAULEY. Thank you, and good afternoon, Chairman Whitfield, members of the subcommittee and fellow panelists. My name is Gerry Cauley. I am President and CEO of the North American Electric Reliability Corporation. I am a graduate of the U.S. Military Academy, former officer in the U.S. Army Corps of Engineers, and I have over 30 years' experience in the electric power industry.

I have with me today Vice President and Director of Reliability Assessments, Mark Lobby, and I would ask perhaps if there are technical questions on our report—he was the author of the report—I may request permission to call on him as needed.

There are two words that resonate through everything that NERC does: reliability and accountability. Our mission is to ensure the reliability of the bulk power system through our mandatory standards, through our assessments and by promoting a culture of a learning industry. We are accountable to the government, to industry, and ultimately to consumers for ensuring a reliable bulk power system. By assessing and analyzing historic current and future conditions as well as emerging issues affecting the bulk power system reliability, NERC develops vital information for managing current and future reliability risks and for improving reliability performance.

In the nearly 5 years since NERC was certified as the Electric Reliability Organization by the Federal Energy Regulatory Commission, NERC has made significant progress, particularly in the area of reliability assessments. NERC produces a yearly long-term report with a 10-year horizon, two annual seasonal reports for the winter and summer seasons, and special assessments as needed. These reliability assessments are conducted to provide an independent evaluation of industry's plans to ensure future reliability of the bulk power system and to identify trends, emerging issues and potential concerns.

In October 2010, NERC released a report entitled "2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations. The focus of this assessment was to quantify the potential impacts of pending and planned EPA regulations on future resource adequacy. The report was intended to inform NERC stakeholders, industry leaders, policymakers, regulators and the public so that sound and informed decisions can be made. It is NERC's responsibility as the ERO to as-

sess and highlight bulk power system reliability considerations resulting from emerging system conditions or external events to ensure that suitable plans are put in place to ensure reliability.

NERC's scenarios addressed four rules under consideration at the time of our assessment: section 316(b), the MACT standard, CATR, and CCR. We evaluated both strict and moderate cases for each rule to provide sensitivities to the assumptions that we used. Because more than one regulation pertains to any given power plant, NERC performed an economic assessment of these regulations both individually and cumulatively in the aggregate. Some of the findings of the assessment based on the rules under consideration during our study include for the strict case, for the strict scenario, up to a 78-gigawatt reduction in coal-, oil-, and gas-fired generation capacity could be seen based on resource plans existing at the time of the study. Section 316(b) would have had the greatest potential for impact on reserve margins.

The EPA regulations, if implemented as planned or proposed at the time we completed our assessment, would create a need for prompt industry response and action to address future resource requirements. Without attention to these findings, the study identified bulk power system reliability impacts resulting from reduced reserve margins in certain areas of the United States. We believe the potential reliability implications of these regulations can be managed through timing, tools, and coordination. The timing of the industry's obligations for compliance with environmental regulations is the most important consideration. The industry needs both time and certainty of its obligations in order to act and make informed decisions.

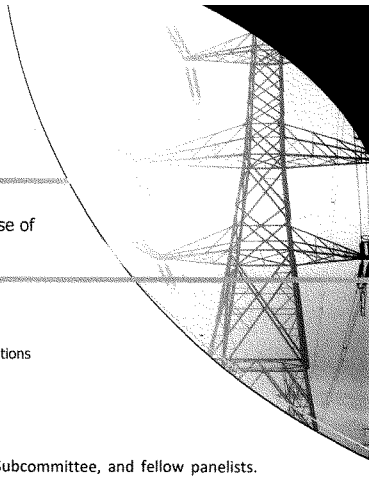
NERC identified a number of tools the industry and regulators have for mitigating the potential reliability impacts such as advancing in-service dates of future generation and implementing more demand response and energy efficiency. The EPA, FERC, the Department of Energy and State regulators should employ the entire array of tools at their disposal to moderate reliability impacts including granting extensions needed to install emissions controls and add additional supplier demand resources as needed.

Thirdly, industry coordination will be vital to ensure retrofits are completed in a way that addresses all of the operational challenges. Since our study, the EPA has issued proposed rules for Utility MACT and 316(b). NERC is reviewing the proposed rules, and if there are significant differences from our 2010 report, an assessment would likely be provided in our annual assessment released in November. NERC will continue to monitor the implications of the EPA regulations as greater certainty emerges around these industry obligations and our requirements.

I thank you for your interest in NERC's findings and its report, and I sincerely appreciate your interest in reliability and the opportunity to answer questions today. Thank you.

[The prepared statement of Mr. Cauley follows:]

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION



Testimony:
Gerry Cauley, NERC President and CEO, to the U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Energy and Power– April 7, 2011

Reference:
NERC 2010 Special Reliability Scenario Assessment:
Potential Resource Adequacy Impacts of U.S. Environmental Regulations
http://www.nerc.com/files/EPA_Scenario_Final_v2.pdf

Introduction

Good afternoon Mr. Chairman, Members of the Subcommittee, and fellow panelists. My name is Gerry Cauley and I am the President and CEO of the North American Electric Reliability Corporation (NERC). I am a graduate of the U.S. Military Academy, a former officer in the U.S. Army Corps of Engineers, and have over 30 years experience in the bulk power system industry. I have worked at NERC for 15 years, becoming President and CEO in 2010, after being the President and CEO of SERC Reliability Corporation for three years.

NERC continues to make considerable progress in pursuit of its mission to ensure the reliability of the bulk power system in North America during an era of significant change. Over the coming ten years, the North American electric industry will face a number of significant emerging reliability issues. The confluence of these issues will drive a transformational change for the industry, potentially resulting in a dramatically different resource mix, implementation of environmental regulations, a new model for customer

interaction with their utility, and a smarter grid built to address growing cybersecurity concerns. Each of these elements of change is critically interdependent; government and industry action must be closely coordinated to ensure reliability. By assessing and analyzing historic, current and future conditions, as well as emerging issues affecting bulk power system reliability, NERC develops information vital to being a risk-informed organization and supporting a learning environment for industry to pursue improved reliability performance.

Today, I am here to discuss the key findings of NERC's recent assessment of pending and planned environmental regulations and their relationship to bulk power system reliability.

NERC and Reliability Assessments

NERC's mission is to ensure the reliability of the bulk power systems of North America and promote reliability excellence and accountability. NERC was founded in 1968 to develop voluntary standards for the owners and operators of the bulk power system.[1] In 2007, NERC was designated the Electric Reliability Organization (ERO) by the Federal Energy Regulatory Commission (FERC) in accordance with Section 215 of the Federal Power Act, enacted by the Energy Policy Act of 2005. Following approval by FERC, reliability standards promulgated by NERC became mandatory across the bulk power system. Section 215(g) of the Federal Power Act requires the ERO to conduct periodic

[1] The Bulk Power System is defined as generation and transmission of electricity greater than 100kV, in contrast to the distribution of electricity to homes and businesses at lower voltages.

assessments of the reliability and adequacy of the bulk power system in North America. Section 802 of NERC's Rules of Procedure outlines the objectives and scope of the Reliability Assessment Program, which includes the following:

- Review, assess, and report on the overall electric generation and transmission reliability (adequacy and operating reliability) of the interconnected bulk power systems, both existing and as planned.
- Assess and report on the key issues, risks, and uncertainties that affect or have the potential to affect the reliability of existing and future electric supply and transmission.
- Review, analyze, and report on regional self-assessments of electric supply and bulk power transmission reliability, including reliability issues of specific regional concern.
- Identify, analyze, and project trends in electric customer demand, supply, and transmission and their impacts on bulk power system reliability.
- Investigate, assess, and report on the potential impacts of new and evolving electricity market practices, new or proposed regulatory procedures, and new or proposed legislation (e.g. environmental requirements) on the adequacy and operating reliability of the bulk power systems.

NERC's Rules of Procedure also outline parameters for Reliability Assessment Reports, including periodic assessments and special reliability assessments. The results of these

reliability assessments are documented in three reports: the long-term reliability and the annual seasonal (summer) and the annual seasonal (winter) assessment reports. NERC's Reliability Assessments are conducted to provide an independent view of the reliability of the bulk power system, identifying trends, emerging issues, and potential concerns. NERC's projections are based on a bottom-up approach, collecting data and perspectives from grid operators, electric utilities, and other users, owners, and operators of the bulk power system, supplemented by independent analysis and reporting by NERC.

The **Long-Term Reliability Assessment** annually assesses the adequacy of the bulk electric power system in the United States and Canada over a ten-year period. The report projects electricity supply and demand, evaluates transmission system adequacy, and discusses key issues and trends that could affect reliability. Detailed generation and transmission adequacy assessments are conducted for the first five years of the review period. For the second five years of the review period, the assessment focuses on the identification, analysis, and projection of trends in peak demand, electric supply, and transmission adequacy, as well as other industry trends and developments that may impact future electric system reliability. Reliability issues of concern and their potential impacts are presented along with any mitigation plans or alternatives. NERC also publishes electricity supply and demand data associated with the Long-Term Reliability Assessment. The Long-Term Reliability Assessment reports are published in the fall of each year.

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The **Summer and Winter Assessments** assess the adequacy of electricity supplies in the United States and Canada for the upcoming summer and winter peak demand periods. These two reports provide an overall perspective on the adequacy of generation resources and the transmission systems to meet projected summer and winter peak demands. These reports also identify reliability issues of interest, regional and subregional areas of concern, and may include possible mitigation alternatives.

Special Assessments are conducted on a regional, interregional, or interconnection-wide basis as conditions warrant, or as requested by NERC's board or governmental authorities. NERC reliability and technical experts also may initiate special assessments of key reliability issues and their impacts on the reliability of regions, subregions, or an interconnection (or a portion thereof). Such special reliability assessments may include, among other things, operational reliability assessments, evaluations of emergency response preparedness, adequacy of fuel supply, hydro conditions, reliability impacts of new or proposed environmental rules and regulations, and reliability impacts of new or proposed legislation that affects or has the potential to affect the reliability of the interconnected bulk power systems in North America.

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2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations

The *2009 Long-Term Reliability Assessment* noted environmental legislation and regulation as an emerging issue. Accordingly, the NERC Planning Committee directed the Reliability Assessment Subcommittee to complete a special reliability assessment of this regulation and legislation. In July 2010, NERC completed an assessment of the status and bulk power system reliability effects from integrating technologies to address potential climate change initiatives.[2] In October 2010, NERC released a report titled, *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations.* The NERC Planning Committee and Reliability Assessment Subcommittee are made up of U.S. and Canadian industry experts, engineers, and technical advisors with expertise in resource planning and environment regulations representing all sectors of the electric power industry.

The focus of this special reliability assessment is to identify potential outcomes of pending and planned U.S. Environmental Protection Agency (EPA) regulations and quantify potential effects on future resource adequacy (i.e., reductions in Planning Reserve Margins). Additionally, the report is intended to inform NERC's stakeholders, industry leaders, policymakers, regulators, and the public so that sound and informed decisions can be made on resource requirements. It is NERC's responsibility as the ERO

[2] NERC Report, *Reliability Assessment of Climate Change Initiatives: Technology Assessment and Scenario Development*, http://www.nerc.com/files/RICCI_2010.pdf, July 2010

in the United States to assess and highlight bulk power system reliability considerations resulting from emerging system conditions or external events to ensure that suitable plans are put in place to ensure reliability.

The scope of this special assessment included study of the potential implications of four pending and planned EPA regulations on resource adequacy, based on expectations as of the end of October 2010. The four regulations studied individually and in aggregate were:

- ***Clean Water Act – Section 316(b), Cooling Water Intake Structures***
  - Assumed the retrofit of open-loop cooling systems to closed-loop cooling (addition of cooling towers was assumed in our modeling analysis) and all nuclear plants made the upgrades.
- ***Clean Air Act – Section 112, Utility Air Toxics***

  Title I of the Clean Air Act – National Emission Standards for Hazardous Air Pollutants (NESHAP), or ***Maximum Achievable Control Technology (MACT) Standards;*** *(the proposed Utility* ***Air Toxics Rule*** *was issued on March 16, 2011).*
  - Requires coal-fired plants to reduce their emissions of air toxics, including mercury and acid gases.
- ***Clean Air Transport Rule (CATR)***

- Regulates SO_2 and NO_x to reduce long-range transport of pollutants contributing to ground-level ozone and fine particle non-attainment issues in downwind states.

- ***Coal Combustion Residuals (CCR)***
  - Would regulate coal-fired power plants currently disposing of more than 130 million tons per year of coal-ash and solid byproducts.

Planning bulk power system resources requires an integrated view, one that addresses the cumulative effects of multiple factors that drive decisions. It is for this reason that NERC assessed the impacts resulting from water, air and hazardous waste regulations.

Conduct of the Study

Through an integrated impact analysis, NERC was able to assess the cumulative effects of multiple regulations on electric power generation. Because more than one regulation pertains to any given power plant, the integrated analysis enabled NERC to perform an economic assessment, using industry-vetted assumptions, to measure the effects of complying with these regulations. This integrated impact analysis process is comparable to the way in which industry does planning—industry must deal with all regulations rather than each regulation in isolation. By determining the aggregate impact of the multiple applicable regulations, industry can identify economically vulnerable units, make decisions on potential retirements and retrofits, and acquire additional capacity resources to maintain reliability, be they demand or supply side. To complete this

decision process, industry must be given enough time to effectively coordinate both retirement and retrofit decisions for existing generation. Each power plant in the United States will have its own unique characteristics. Different areas of the country will be affected more than others; therefore, from a power system planning and wide-area reliability perspective, the geographic location of the most affected units must be well understood.

The assessment design is particularly important to understand—the assessment results are a snapshot of the future based on sound engineering assumptions where uncertainty exists. The assessment relies on two separate scenario cases (Moderate and Strict) for each rule to provide sensitivities to the assumptions used. The Moderate Case assumes the compliance costs as identified in *Appendix I: Assessment Methods* and *Appendix II: Environmental Regulations*. The Strict Case scenarios reflect the coupled effects of higher compliance costs with more stringent requirements for the proposed rules (i.e., stricter emission standards and exclusion of government extensions). As the EPA rules were not all yet final, the Moderate Case and the Strict Case provided sensitivities based on expert judgment and reasonable assumptions to provide information as to the difference in possible outcomes from the potential EPA rules. Further, we assessed each regulation individually and in combination to determine the cumulative effects on resource plans. NERC then calculated the amount of capacity reductions due to accelerated unit retirements and increased station load needed to

power additional environmental controls for the years 2013, 2015, and 2018, based on demand and generation projects from NERC's *2009 Long-Term Reliability Assessment.*

Study Results

The results of the special assessment can be summarized in three key considerations: timing, tools and coordination:

- The timing of industry's obligations for compliance with environmental regulations is the most important consideration. The pace and stringency of these environmental regulations should take into consideration the overall cumulative risk to the bulk power system. Reliability will be a function of the timing associated with regulatory compliance deadlines. The industry needs both time and certainty to act and make informed decisions.
- NERC identified a number of tools the industry and regulators have for mitigating potential reliability impacts from complying with the environmental regulations assessed in this report. Advancing in-service dates of future generation and implementing more demand response and energy efficiency, as examples, could help alleviate projected capacity losses in severely affected areas. Where organized energy markets exist, price signaling for new resources requirements will be especially important to replace potentially lost capacity in a timely manner. EPA, FERC, the U.S. Department of Energy (DOE) and state utility regulators, both together and separately, should employ the array of tools at their disposal to

moderate reliability impacts, including, granting extensions to install emission controls where warranted.

- Industry coordination will be vital to ensure retrofits are completed in a way that does not diminish reliability. Statutory and regulatory safeguards also allow the EPA, the President of the United States, and DOE to extend or waive compliance under certain circumstances. Increased coordination with state regulators will be required to ensure rules can be implemented effectively in order to maintain reliability. Coordinating an industry-wide environmental control retrofit effort creates considerable operational challenges to manage the maintenance schedules of what may be hundreds of retrofits in a short period of time. It will require careful coordinated planning, carried out by the operators throughout the interconnections.

More specifically, the results and key findings of the October 2010 report are as follows:

- **EPA Regulations May Have Significant Impacts on Planning Reserve Margins**
  - For the Strict Case, up to a 78 GW reduction of coal, oil, and gas-fired generation capacity is identified as economically vulnerable during the ten-year period of this scenario. For the Moderate Case, this reduction occurs in 2018; while in the Strict Case, similar reductions occur in 2015.
  - Due to increased demand growth, this reduction in capacity significantly affects projected Planning Reserve Margins for a majority of the NERC Regions and

subregions. Potentially significant reductions in capacity within a five-year period require heightened need for the addition of resources in a short time-period.

- Overall, impacts on Planning Reserve Margins and the need for more resources is a function of the pace of the proposed EPA rules.

- **Regional Capacity Impacts Will Vary**
  - Capacity reductions are concentrated in six NERC regions: TRE, MRO, NPCC, RFC, SERC and southern WECC. I have attached a map showing the boundaries of the NERC regions to my testimony.

- **Individually, as modeled, the Section 316(b) Cooling Water Intake Structures Rule Would Have the Greatest Potential Impact on Planning Reserve Margins**
  - This rule will apply to 252 GW (1,201 units) of coal, oil steam, and gas steam generating units across the United States, as well as approximately 60 GW of nuclear capacity (approximately a third of all resources in the United States). We assumed all nuclear plants would remain on line in this assessment, though the Oyster Creek nuclear power plant has since announced retirement in 2019.

- **As modeled the Maximum Achievable Control Technology Standards (MACT), Clean Air Transport Rule (CATR), and the Coal Combustion Rule CCR Rules Also Contributed to Reductions in Capacity**

- The "hard-stop" 2015 compliance deadline applicable to the EPA Utility MACT[3] Rule makes retrofit timing a significant issue and potentially problematic. The increased demand for contractors, materials, and engineering expertise needed to install environmental controls could potentially impede the industry's ability to comply with the rules within the given timeframe.
- The CATR could have impacts as soon as 2013 with more significant impacts by 2015.
- Individually, the CCR Rule is projected to drive the least amount of economically vulnerable units. However, the associated compliance costs of CCR contribute to the cumulative effects shown in the Combined EPA Regulation Scenario.

Conclusion

NERC issued the *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations* in October of 2010. EPA since has issued proposed rules for Utility MACT (now proposed as the Air Toxics Standards for Utilities) and 316(b) (impingement and entrainment of aquatic organisms). NERC is reviewing these proposed rules and if significant impacts to the 2010 report are determined, an assessment would likely be included in the *2011 Long-Term Reliability Assessment* to be released in November. NERC will continue to monitor the implications

[3] If EPA finalizes the utility MACT rule in November 2011 as currently planned, compliance would be required by November 2014 under Section 112 of the CAA.

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of the EPA regulations as greater certainty or finalization emerges around industry obligations, technologies, timelines, and targets.

NERC continues to believe that if EPA and industry take the actions recommended in the report, the potential reliability implications of these regulations can be managed. Without attention to these matters, we remain concerned about potential reliability implications resulting from reduced reserve margins in certain areas in the United States We look forward to working with EPA and the industry to continue a dialogue on reliability as these proposed rules are considered.

NERC will continue to pursue its mission to ensure the reliability of the bulk power system in North America during an era of significant change. By assessing and analyzing the historic, current and future conditions, as well as emerging issues affecting bulk power system reliability, NERC develops the information vital to be a risk-informed organization and support a learning environment for industry to pursue improved reliability performance.

Thank you for your interest in NERC's findings. I sincerely appreciate your attention to bulk power system reliability and look forward to the panel's discussions.

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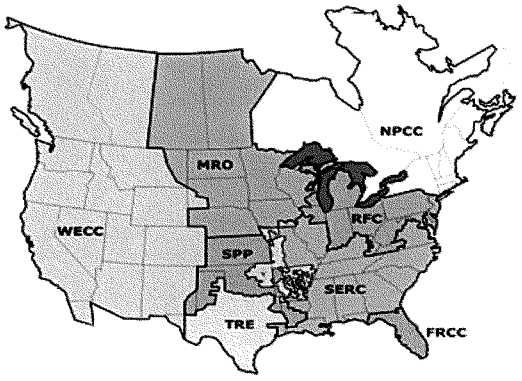
NERC assesses and reports on the reliability and adequacy of the North American bulk power system divided into the eight Regional Areas shown on the map below. The users, owners, and operators of the bulk power system within these areas account for virtually all the electricity supplied in the United States, Canada, and a portion of Baja California Norte, Mexico. NERC is currently headquartered in Atlanta with additional offices in Washington, DC.



NERC Regional Entities

TRE Texas Reliability Entity	**FRCC** Florida Reliability Coordinating Council	**MRO** Midwest Reliability Organization	**NPCC** Northeast Power Coordinating Council, Inc.
RFC ReliabilityFirst Corporation	**SERC** SERC Reliability Corporation	**SPP** Southwest Power Pool, Incorporated	**WECC** Western Electricity Coordinating Council

***Note:** The highlighted area between SPP and SERC denotes overlapping regional area boundaries. For example, some load-serving entities participate in one region and their associated transmission owner/operators in another.*

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April 20, 2011

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
House Energy and Commerce Committee
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Whitfield,

Thank you for the opportunity to appear before your subcommittee on April 7, 2011. This letter is in response to the committee's invitation to provide additional comments for the record. As President and CEO of the North American Electric Reliability Corporation (NERC), I would like to provide the following comments.

During the hearing, NERC was referred to as an industry association. To clarify, NERC is an independent 501(c)(6) non-profit corporation whose membership includes large and small electricity consumers, government representatives, municipalities, cooperatives, independent power producers, investor owned utilities, independent transmission system operators and federal power marketing agencies such as TVA and Bonneville Power Administration. NERC, through Sec. 215 of the Federal Power Act is given numerous authorities, including the authority to audit, enforce mandatory standards and issue fines up to one million dollars a day, subject to FERC oversight.

Secondly, during the hearing Rep. Matheson asked for comments on the discussion draft of the "Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011." In the draft, the ERO is invited to participate as a member of an interagency committee. While we value the participation, our status as an independent, third party voice is important to the credibility of our assessments and analyses, such as the *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations* report. Therefore, in order to retain this independence, we would ask the authors of the legislation and the members of the subcommittee to consider having us serve as an advisor to the interagency committee rather than as a member of the committee.

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We sincerely appreciate the interest of the members and the subcommittee on the value of cumulative analysis of regulations. We appreciated the opportunity to discuss our study and look forward to future discussions with you.

Sincerely,

Gerry Cauley
President and Chief Executive Officer

Mr. WHITFIELD. Thank you very much.
You are recognized, Mr. Schaeffer, for 5 minutes.

STATEMENT OF ERIC SCHAEFFER

Mr. SCHAEFFER. Thank you, Mr. Chairman and members of the committee. I am Eric Schaeffer, Director of the Environmental Integrity Project. We advocate for more effective enforcement of environmental law, and I also served with the EPA as head of the Office of Civil Enforcement until 2002.

I would like to briefly summarize my testimony and then maybe cover a couple of points I have heard so far in the hearing. The regulations that are the subject of the bill, the object of the bill, have already been exhaustively analyzed. The Regulatory Impact Analyses are dense documents that are available for anybody to review, and if people want to aggregate those costs, the information is there.

I do understand the importance of bringing jobs back to communities and holding on and hopefully rebuilding in the United States. That is obviously a very important goal. I have heard a lot of mention of balance, and I have to say that a bill that would require the government to consider the costs but not the benefits of regulations really doesn't seem to meet a balance test, at least on the face of it, so I hope you will consider that as you proceed.

The second point I want to make is, we have heard about train wrecks. I would like to suggest that these rules are more like a set of creaky handcarts that are finally lumbering across the finish line, in some cases decades after they were supposed to have been put on the books, and I will give you some examples, and this gets to the issue of time, time, we need more time. Again, these laws have been on the books forever. We have very competent counsel for industry that can read the deadlines and understand what it is they have to do.

EPA made a decision to regulate hazardous air emissions from power plants in December of 2000. Under the Clean Air Act, those standards should have met no later than December of 2005. We are now looking at compliance in 2015, so that is 9 years later. Industrial boilers, deadline 2004, when the law was written by Congress. Emissions limits will have to be met in 2014, so that is about 10 years after the congressional deadline. In 1984, you, the Congress, told EPA to do something about coal ash. We are still waiting for an answer 26 years later. The intake rule that we are talking about, when were those standards due? Nineteen seventy-seven, back when I still had hair on my head and was just getting out of school. So these are very old rules, and the image of speeding trains, anybody who sort of ground away on these regulations over the decades just doesn't fit reality. The industry has had lots of time to plan.

The reason I think you are seeing them come back and ask for this re-analysis of what has already been analyzed is these rules have all gone to court or will go to a court, in a couple cases have gone to court, the industry has lost. The court has told the EPA what it has to do and EPA is doing it. So in the end, if you want to stop these actions, you need to change the laws because what EPA is doing is executing the laws that you gave them and doing

just what the courts have told them to do. If anybody thinks that is incorrect, they can take the agency to court, as they do almost every day, and try their luck. And in several cases here, the industry has done that and lost.

I should add that some of these decisions have come from very conservative judges who believe in taking literally what Congress tells the agency to do. So if you think the balance is wrong, if you think there is too much emphasis on health and not enough on cost to industry, then those laws can be changed. In that case, we will have an open debate. Everybody can see what we are doing. You can decide whether approximately 9,000 to 23,000 premature deaths a year counts more or less than the economic cost of this legislation on particular industries. And I respect that these are very difficult choices. They are very tough. Maybe they deserve to be debated and I hope they will be.

Last point on jobs. I hope you will consider the impact of cleaning up these plants on employment. We have had lots of public releases from the power industry bragging about the number of jobs created every time one of these plants is cleaned up. From Synergy, this will create more than 1,000 construction jobs in Indiana and Ohio to put a scrubber on. From DTE in Michigan, the $600 million project will create 900 jobs and be one of the largest construction projects in Michigan over the next few years. So there is work involved in complying with these laws and not just government inspectors but people on the ground, and I hope you will consider that also.

Thank you for my time.

[The prepared statement of Mr. Schaeffer follows:]

Testimony of Eric Schaeffer before the

House Subcommittee on Energy and Power

Regarding the "American Energy Initiative"

April 7, 2011

Good afternoon, Mr. Chairman and Members of the Committee. My name is Eric Schaeffer, and I am Director of the Environmental Integrity Project, a nonprofit and nonpartisan organization that advocates for more effective enforcement of environmental laws. I also served as head of the USEPA's Office of Civil Enforcement from 1997 to 2002.

I appreciate the opportunity to offer my thoughts on a draft bill to require various Cabinet Secretaries to estimate the cumulative impacts of various rules on the economy and electrical reliability. My testimony is summarized as follows, and explained in more detail further below:

1) The regulations identified for further analysis in the draft bill have already been exhaustively reviewed for both their economic and health impacts;
2) These rules are finally being issued many years after the deadlines set by Congress. Repeated delays in Clean Air Act, Clean Water Act and waste disposal rules have already saved the power industry billions of dollars. Further delays shift cleanup costs to our children, and would eliminate construction and pollution control jobs important to local communities.
3) The draft bill would require government to study the costs – but not the benefits – of regulations that would save thousands of lives from being cut short every year by pollution.
4) It is fairer to change the law than to find ways to keep the USEPA from doing what Congress and the courts have ordered it to do.

We need sensible policies to get our economy back on its feet, keep manufacturing in the US, and bring employment back to communities that desperately need jobs. Relaxing environmental laws will leave the public exposed to dangerous levels of pollution without accomplishing these worthwhile goals.

Regulatory Costs and Benefits Already Evaluated

The draft bill identifies major rules that primarily affect industries that use coal, and attempts to get the government to endorse the "train wreck" scenario that the utility lobby has said will result if they have to comply with Clean Air Act rules that are now long overdue. But the Environmental Protection Agency is already required by law to publish extensive reports on the projected costs of each rule, and the Office of Management and Budget reviews those reports very closely and frequently requires EPA to adjust regulations to reduce costs.

All of us here at the table have the right to comment on those draft rules and reports, and so do all federal agencies. If the North American Electric Reliability Corporation wants to evaluate the impact of these standards on reliability, let them read the Regulatory Impact Analyses, aggregate the expenditures in whatever way they think is reasonable, and give you that information. Requiring Cabinet Secretaries to form task forces, draft reports and run yet another comment period on these rules amounts to a "do-over" for industries who don't much care for the law in the first place. It will cost millions, and is a curious way to spend taxpayer dollars when we are only two days away from shutting down the government because so many in the House of Representatives think we are not cutting enough.

Regulations are Overdue, and Industry Has Already Reaped Billions from Delay

Also, it is important to understand that the regulations that are cited in the draft bill were supposed to have taken effect much earlier under laws enacted by Congress more than twenty years ago. If you are going to be evaluating hypothetical "train wreck" scenarios, please consider also the free ride that many

industries have enjoyed by avoiding the legal deadlines that Congress established for complying with the Clean Air Act and other statutes. For example:

1) The Agency made a decision to regulate hazardous air emissions from power plants in December of 2000, as they were required to do under the Clean Air Act. Section 112 of that law required that those rules be finalized within two years, with compliance no later than December of 2005. Instead, EPA is asking the power companies to meet these standards by January of 2015 – nine years late.
2) Section 112 of the Clean Air Act required EPA to set hazardous air emissions from all other major sources – including industrial and commercial boilers – by the year 2000, with compliance no later than the end of 2003. Instead, EPA is asking that emission limits for these boilers be met by 2014 – more than ten years late.
3) The 1984 Resource Conservation and Recovery Act required EPA to evaluate hazards associated with coal ash, and to determine how best to protect the public from those dangers. Although the Agency has documented contamination at seventy sites and determined that leaking ash ponds and landfills do pose serious risks, EPA has still not taken action: more than twenty six years later.
4) EPA will finally issue rules to regulate cooling water intake from power plants, which can cause significant damage to aquatic life, by July of 2012. It's about time. Under Section 301(b) of the Clean Water Act, those standards were supposed to have been in place by July of 1977 – thirty-five years ago.

These delays have had saved the industry billions of dollars, kicked cleanup costs down the road for the next generation to pay for, and left the public exposed to pollution that causes disease and premature death.

Attachment A shows that if time is money, the owners of power plants and industrial boilers have done quite well by avoiding costs they would have borne if they had had to meet the statutory deadlines Congress set. Using constant dollars and the compliance cost estimates from EPA's Regulatory Impact analysis, for example, delaying hazardous air pollutant limits to the middle part of the next decade has already allowed the industry to avoid more than $120 billion in inflation-adjusted investments in pollution control over about a nine year period, and industrial/commercial boiler operators $20 billion over ten years. Assuming the industry invested those savings at a 7% return (Energy Information Administration data shows much higher returns for investor owned utilities) the power industry earned nearly $9 billion *without* any compounding of that interest. The industry has had their chance to profit from delay, and it is time to move forward.

Delay Can Increase Future Costs

Postponing action may not really save companies money in the long run anyway. We have turned a blind eye to the hazards of storing coal ash in unlined surface impoundments for nearly three decades. Dredging up the spill from just one of those impoundments will cost the Tennessee Valley Authority's ratepayers over a billion dollars. The groundwater at other sites will have to be cleaned up eventually by trial lawyers and courts, if the industry is not required to take sensible action to prevent further contamination. Failure to set industry-wide rules will force everyone to fall back on other provisions of law that require limits to be set on a site by site basis for new or modified boilers, raising costs for some and creating an unlevel playing field for everyone.

The US has 60 year old coal-fired boilers that were built to last 30, and which need to make way for cleaner sources of energy. And where scrubbers and other pollution control devices have been installed, they have been hailed by utilities themselves as a major new source of both construction jobs and permanent jobs, in communities where such opportunities are increasingly rare (Attachment B).

What About the Public's Health?

It is unfair to ask the government to tally up the cost of regulations that lobbyists for utilities and other industries oppose, without also asking how delaying or weakening these rules would affect public health. The pollutants that EPA is trying to take out of the air and water cause asthma, severe bronchitis, cancer, heart disease, and premature death. For example, EPA has estimated that limiting hazardous air pollutants from power plants and industrial boilers would save a combined 9,300 to 23,500 lives per year, and up to $194 billion a year in costs associated with disease and premature death (assuming a 3% discount rate). Based on those estimates, the nine to ten year delay in achieving those standards has already cut at least 80,000 lives short, and perhaps more than 200,000. Delaying action further would only add to the death toll. There is no economic or moral justification for weighing the cost to the industry, but not to the public's health.

Change the Law – Or Let EPA Do What the Law Requires

The rules that have been selected for further review in the draft document have been delayed, studied to death, delayed some more, batted around in federal court, and are not going to take effect for three to five more years. The actions that EPA is taking – finally – are just what Congress and the courts have told them they must do, in laws signed (and sometimes sponsored) by Republican presidents, and enacted with large bipartisan majorities. I understand there are those in industry who want to deep-six the rules the law requires, or postpone them another decade or so, but their representatives have had many, many chances to affect the outcome in Congress, at the White House, at EPA, and in courtrooms.

Industry lawyers worked with the Bush Administration to try to rewrite these rules, including hazardous air emission standards for boilers and power plants mandated by Congress. They lost badly in the DC

Circuit Court of Appeals, which is why they are in front of you today. The culture of procrastination that has flourished in Washington is already lucrative enough – do we really need to reward it any further?

I respectfully suggest that there is a better solution. If Congress thinks these laws should no longer be enforced, schedule some hearings, mark up legislation, get the House and Senate to agree, and persuade the President to sign a bill. That's no more or less than what happened more than two decades ago, when the last major environmental statute was signed into law, and at least the public will be able to see what Congress is up to, and decide whether or not they support it. Until the law is changed, let's stop blaming EPA for doing what the law requires to protect the public health and our environment.

Attachment A

Avoided Costs from Delayed Implementation of Hazardous Air Pollutants (HAP) Rules													
Year	2004	2005	2006	2007	2008	2009	2010	2011	*2012*	*2013*	*2014*	*2015*	**Totals**
Inflation Rate	2.663%	3.388%	3.226%	2.848%	3.840%	-0.356%	1.640%	1.492%	*3.000%*	*3.000%*	*3.000%*	*3.000%*	**(Millions)**
Electric Generating Unit (EGU) HAP Rule													
Inflation Adjusted Avoided Cost	N/A	N/A	$10,598	$10,900	$11,319	$11,278	$11,463	$11,634	$12,523	$13,510	$14,607	$15,831	**$123,663**
3% Return on Avoided Cost	N/A	N/A	$318	$327	$340	$338	$344	$349	$376	$405	$438	$475	**$3,710**
7% Return on Avoided Cost	N/A	N/A	$742	$763	$792	$789	$802	$814	$877	$946	$1,022	$1,108	**$8,656**
Industrial Boiler HAP Rule													
Inflation Adjusted Avoided Cost	$5,875	$1,270	$1,311	$1,348	$1,400	$1,395	$1,418	$1,439	$1,482	$1,527	$1,572	N/A	**$20,037**
3% Return on Avoided Cost	$176	$38	$39	$40	$42	$42	$43	$43	$44	$46	$47	N/A	**$601**
7% Return on Avoided Cost	$411	$89	$92	$94	$98	$98	$99	$101	$104	$107	$110	N/A	**$1,403**

Notes:
1) Inflation rates determined by calculating the inflation adjusted values using the Bureau of Labor Statistics inflation calculator, avilable online at : http://www.bls.gov/data/inflation_calculator.htm
2) EGU HAP costs based on EPA's Regulatory Impact Analysis (RIA) of $10.9 billion (annually) in 2007 dollars (pg. 8-12) , available online at: http://www.epa.gov/ttn/ecas/regdata/RIAs/ToxicsRuleRIA.pdf

3) Industrial Boiler HAP costs based on EPA's RIA of one-time capital expenditures of $5.1 billion in 2008 dollars (applied in 2004 here) and $1.4 billion annually (pg. 3-3), available online at: http://www.epa.gov/ttn/ecas/regdata/RIAs/boilersriafinal110221_psg.pdf
4) 3% annual adjustment taken from EPA's RIAs

Attachment B
What Utilities Say about Pollution Control and Job Creation

Cinergy: *"Cinergy Operating Companies to Reduce Power Plant Emissions, Improve Air Quality"*
(2 September 2004)

"According to the U.S. Environmental Protection Agency, these new rules will trigger the largest investment in air quality improvement in the history of the United States," said Cinergy Chairman, President and Chief Executive Officer James E. Rogers. "This will be our companies' largest environmental construction program, generating more than 1,000 construction jobs in Indiana and Ohio. Importantly, this plan enables us to burn coal more cleanly and to continue using a low-cost source of generating electricity for our customers."

PR NewsWire: *"DTE Energy Environmental Project Will Create 900 Jobs"*
(8 December 2009)

"DTE Energy announced today that it will begin a major environmental construction project in the first quarter of 2010 at its Monroe Power Plant. The $600 million project will create 900 jobs and be one of the largest construction projects in Michigan over the next few years."

"DTE Energy will be installing two additional flue gas desulfurization (FGD) systems at the coal-fired Monroe Power Plant to further reduce sulfur dioxide (SO2) emissions. FGDs, also known as scrubbers, reduce SO2 emissions by about 97 percent."

"The Monroe Power plant, which consists of four individual generating units, began operation of two scrubbers earlier this year. When all four scrubbers are operational, they will nearly eliminate sulfur dioxide emissions from the plant."

"The $600 million scrubber project will create 600 construction jobs. The construction workers will come primarily from the local building trades unions."

American Electric Power: *"AEP, Buckeye Power plan substantial environmental investments for Cardinal Plant at Brilliant, Ohio"*
(26 April 2004)

"American Electric Power (NYSE: AEP) and Buckeye Power are investing in new environmental controls at the jointly owned Cardinal Power Plant in Brilliant, Ohio, a project that not only will reduce emissions but also will provide a boost to the area's economy."
"'AEP's portion of this investment is part of the $3.5 billion we are investing to improve the environmental performance of our generation plants,' said Michael G. Morris, AEP chairman, president and chief executive officer. 'The scrubber installations at Cardinal will reduce emissions from this facility and, at the same time, will keep the plant producing a reliable supply of low-cost power for both AEP and Buckeye Power customers.'"

"The construction projects will create the need for temporary labor. Temporary positions will be filled through contractors selected to install the equipment. Workers from all 14 building trades will be supplied through local union hiring halls. Additional full-time staff will be required once the scrubbers are completed and in operation. The number of additional full-time staff will depend upon the technology installed and material-handling decisions the company makes during the engineering phase."

Appalachian Power: *"Study of coal ash sites finds extensive water contamination"*
(6 March 2009)

"An environmental control construction project at Appalachian Power's John E. Amos Plant will reach a major milestone next week when the plant's Unit 3 scrubber begins operation. AEP is investing more than $1 billion to install scrubbers on all three generating units at the Amos Plant. The scrubbers, also known as flue gas desulfurization units, will reduce sulfur dioxide (SO2) emissions by as much as 98 percent."

"Several hundred workers remain involved in the construction effort, which is still under way for the plant's Units 1 and 2. Additionally, nearly 100 permanent workers have been hired to operate and maintain the scrubbers."

Constellation Energy: *"Brandon Shores Scrubber Project"*

"Constellation Energy's flue gas desulfurization or "scrubber" project began commercial operation in March 2010 at the Brandon Shores Power Plant in Anne Arundel County, Md., making Brandon Shores one of the cleanest-burning power plants of its kind in the nation."

"Constellation Energy's nearly $1 billion investment in the scrubber project is one component of a clean air program which ensures Constellation Energy's coal-fired power plants will meet all emissions requirements of Maryland's Healthy Air Act, which was signed into law in 2006."

"Construction on the scrubber project took three years to complete and included nearly four million man-hours of work from representatives of the Baltimore Building and Construction Trades Council."

Allegheny Power Inc.: *"Allegheny Energy Signs Contract for Scrubber Installation at Fort Martin Power Station"*
(15 March 2007)

"Allegheny Energy, Inc. (NYSE:AYE) today announced the signing of an engineering, procurement and construction agreement for flue gas desulfurization equipment (scrubbers) at its coal-fired Fort Martin Power Station. The scrubbers will reduce sulfur dioxide emissions by approximately 95 percent at the facility, located six miles north of Morgantown, W.Va."

"Allegheny signed the agreement with Washington Group International. The Fort Martin project is a continuation of Allegheny's overall environmental improvement program, which includes commitments to invest approximately $1.4 billion to reduce emissions over the next few years."

"Allegheny expects the project to create approximately 350 jobs during the construction phase, as well as additional full-time jobs for operation and maintenance of the equipment once construction is complete."

Mr. WHITFIELD. Thank you, Mr. Schaeffer.
Mr. Bailey, you are recognized for 5 minutes.

STATEMENT OF MARK A. BAILEY

Mr. BAILEY. Thank you. Good afternoon, Mr. Chairman and members of the committee. My name is Mark Bailey and I am the President and CEO of Big Rivers Electric Corporation. I appreciate the opportunity to discuss Big Rivers' assessment of the impacts of the proposed EPA regulations on electric reliability, the cost of electricity and our customers.

Big Rivers is a not-for-profit cooperative, and we generate and transmit power, and we are located in western Kentucky. The three distribution cooperatives who own us serve collectively 113,000 customers, both residences and businesses. We are a small company. We own 1,500 megawatts of generating capacity, and 97 percent of the electricity we produce comes from coal-fired generators.

We believe that we have taken a proactive approach in meeting our environmental obligations by equipping essentially our entire fleet with SO_2 and NO_X controls. However, compliance with pending EPA regulations identified in section 3(e) of the legislation before this committee will be very difficult for us in the near term due to the piecemeal and staggered approach the EPA is using in issuing these contemplated regulations. At this time affected electric utilities do not have all the information needed to make informed and cost-effective decisions.

While the proposed clean air transport rule and the hazardous air pollutants rules may enable electric generators to use some common control equipment to satisfy both of those rules, we will still be waiting for the coal combustion residual rule to come out a little later, and dependent on what is required there, whether ash is classified as hazardous or not, can tip the scales in one fashion or another so far as what we would do to comply with the two earlier rules that need to be complied with on an earlier date. So it is possible that you have to make a decision and gamble on doing the right thing to comply with the two earlier deadline rules and hope that doesn't change when the final rule comes out. Or you can gamble and wait and see what the entire rules look like but then you run the risk of not meeting the earlier deadline requirements.

In addition to this concern, compliance timelines are unreasonably short and virtually impossible to achieve. Because of this, many utilities will be racing simultaneously to comply, which will exacerbate the cost concerns as we compete for scarce resources to get all these facilities built in a very narrow window.

The cumulative effect of EPA's next series of regulations will result in significant financial and economic impacts to western Kentucky. A particular concern for our region and perhaps the entire Nation is the potential loss of aluminum smelters and other strategic electric-intensive industries due to electric rate increases. Seventy percent of the energy that Big Rivers produces is used by two of only four aluminum smelters still operating in this country at 100 percent capacity. Not only do the smelters employ 1,400 people and pay relatively high wages, the satellite industries in our region that serve them collectively employ all together 5,000 individ-

uals and the annual payroll is about $200 million, and there is an additional $17 million in State and local taxes.

To help put this in context, over the past 5 years at least 12 U.S. aluminum smelters have shut down and five have curtailed their operations. These actions are largely attributable to rising electricity rates along with global competition. Any significant increase in rates will threaten the ability of these smelters to continue operating in Kentucky and perhaps the rest of the country as well. I believe the future impact of the EPA's proposed regulations will ultimately increase electric cost, could negatively affect reliability, at least in the short term, may reduce employment and weaken the global competitiveness of the American manufacturing industry.

In closing, Big Rivers estimates compliance costs with the impending EPA regulations will increase our rates 40 percent at the wholesale level by 2015. The piecemeal approach that EPA is taking in issuing its regulations and then the staggered and compressed time frame to comply could result in unnecessary and additional spending and suboptimal results. At a minimum, we respectfully request that the committee consider delaying implementation of EPA regulations until all planned regulations have been promulgated so that affected utilities can analyze them on a holistic and informed basis. Thank you.

[The prepared statement of Mr. Bailey follows:]

UNITED STATES OF AMERICA

BEFORE THE

ONE HUNDRED TWELFTH CONGRESS

OF THE UNITED STATES

HOUSE OF REPRESENTATIVES

COMMITTEE ON ENERGY AND COMMERCE

HEARING ENTITLED

"THE AMERICAN ENERGY INITIATIVE"

TESTIMONY

OF

MARK A. BAILEY

PRESIDENT and CHIEF EXECUTIVE OFFICER

BIG RIVERS ELECTRIC CORPORATION

DATED: **April 7, 2011**

SUMMARY OF
MARK BAILEY TESTIMONY
BEFORE THE
SUBCOMMITEE ON ENERGY & POWER
APRIL 7, 2011

- Big Rivers Electric Corporation (Big Rivers) is a not-for-profit Generation and Transmission electric cooperative located in western Kentucky.
- Big Rivers' utilizes coal to produce ~97% of the energy consumed by its members.
- Recently advanced U.S. E.P.A air and water quality regulations will require significant expenditures by Big Rivers for installation of pollution control equipment.
- The compliance requirements and timelines of the various E.P.A. regulations have not been coordinated, thereby creating significant uncertainty for Big Rivers and the electric utility industry.
- Some potentially cost-effective compliance options may be precluded due to regulatory uncertainty.
- Initial estimates of the expense for Big Rivers to comply with E.P.A. regulations (~$785,000,000) equals approximately ¾'s of the value of Big Rivers existing generation fleet.
- Estimated wholesale rate increases of ~40% by 2015 may harm western Kentucky families and businesses, particularly strategic industries that utilize large amounts of electricity.
- Approximately 70% of the electricity Big Rivers generates is consumed by two aluminum smelters.
- These two industries, which collectively employ 1,400, are sensitive to rate increases and at risk of closing or moving operations.

DIRECT TESTIMONY
OF
MARK A. BAILEY

"The American Energy Initiative"

Thursday, April 7, 2011

Thank you for allowing me to speak with you today. My name is Mark Bailey, president and CEO of Big Rivers Electric Corporation. I have been invited to the Subcommittee on Energy and Power hearing to address Big Rivers' assessment of the impacts of the proposed EPA's regulations on electric reliability, the price of energy and how these regulations impact our customers.

Like many electric utilities in the country, Big Rivers has been attempting to develop preliminary plans to comply with the proposed EPA regulations; specifically Hazardous Air Pollutants – Maximum Achievable Control Technology (**HAPs MACT**), Clean Air Transport Rule (**CATR**), Coal Combustion Residuals (**CCR**), Carbon Dioxide (**CO2**), and Water Quality (**316 a & b**) effluent regulations.

I would first like to provide a quick overview of Big Rivers. We are a not-for-profit electric generation and transmission (G&T) cooperative located in western Kentucky. We provide wholesale electric power to three distribution cooperatives (Jackson Purchase Energy Corporation, Meade County Rural Electric Cooperative Corporation, and Kenergy Corp.) that own our company. Collectively, they serve nearly 113,000 consumers in twenty-two counties in western Kentucky.

Big Rivers owns 1,459 megawatts (MW) of generating capacity, plus we have access to an additional 178 megawatts of contracted hydroelectric power from the Southwest Power Administration (SEPA). Approximately 97% of our electricity is generated from coal, which happens to be the most affordable fuel source available in our area. Due to our proximity to the west Kentucky coal fields we supply some of the lowest priced electricity in the country, particularly to our members' commercial and industrial consumers.

Big Rivers has taken a proactive approach in our attempts to be good stewards of our environment and we plan to continue to do so. For example, we have already equipped 96% of our generating capacity with scrubbing technology, which removes 90% to 98% of sulfur dioxide (SO2) emissions. The most recent scrubber addition in 2006 was at our Coleman Station located in Hancock County. This project reduced the total tons of sulfur dioxide emitted system-wide by 53,821 tons (63%) from 2005 (before) to 2007 (after). Our units are equipped with Low NOx Burners to remove nitrogen oxide (NOX) emissions. Additionally, three of our generating units (27% of our capacity) are currently equipped with Selective Catalytic Reduction (SCR) technology for further high-efficiency nitrogen oxide (NOx) removal.

Although we have made significant investments in pollution control equipment, compliance with pending EPA regulations, identified in Section 3e of the legislation before this committee, will be very difficult for us in the near-term due to the lack of coordination of the regulations proposed by the EPA and the timing of compliance.

EPA's website states: "EPA is taking a coordinated approach to control air emissions from power plants. Issuing several standards to limit multiple pollutants from power plants provides the industry the certainty they need to make smart and cost-effective investments in control technology." This statement implies that electric producers have all the information we need to make informed, cost-effective decisions; however, I disagree.

The proposed Clean Air Transport Rule (CATR) and Hazardous Air Pollutants-Maximum Achievable Control Technology (HAPs-MACT) rules may enable electric utilities to utilize some common control technology to address both rule requirements, but investment in that technology may not be the path chosen dependent on the requirements contained in the final proposed Coal Combustion Residual (CCR) regulation. The CCR regulation may drive utilities to convert from coal to natural gas, or even shutdown rather than proceed with control technology implementation; however the rule will not be finalized prior to the issuance of the other two rules. The expense of installing control equipment on coal-fired generating units to comply with the first two rules may have been wasted if it is later found that conversion to natural gas is the best solution to meet the later issued CCR rule.

Compliance with pending EPA regulations will be very difficult for Big Rivers and other utilities to achieve due to the timing constraints associated with the regulations. The cumulative effect of EPA's next series of regulations will result in significant financial and ancillary impacts to western Kentucky while the benefits may be less than expected.

Big Rivers has a unique load profile in that over 70% of our generation output is used to serve the industrial sector. Few, if any other utilities serve such a heavy concentration of industrial load. The bulk of the power we produce is used by two of only four aluminum smelters still operating at 100% capacity in the United States today.

Our relatively low electric rates are a significant reason the aluminum smelters in our territory are still operating here today. Electric costs account for nearly a third of a smelter's total costs. The two aluminum smelters that we serve employ approximately 1,400 individuals, who collectively earn over $115 million annually in wages, salaries, and benefits. The smelters along with the satellite industries in our region that serve them employ nearly 5,000 people who earn collectively $193 million in wages and other benefits. State and local governments in Kentucky could potentially lose nearly $17 million annually if these two smelters and the industries that serve them were to close due to substantially rising electricity rates.

Over the past five years at least twelve aluminum smelters in the United States have shut down while another five smelters have curtailed operations in this nation. Electric costs and global competition have played a considerable role in that trend. Any significant increase in electric rates will threaten our two smelters' ability to operate not only in Kentucky but in the United States. Of particular concern for western Kentucky and the nation as a whole is the potential loss of aluminum smelters and other strategic electric intensive industries due to electric rate increases.

I believe the future impact of the EPA's proposed regulations will ultimately increase electric costs, could effect reliability, reduce employment and weaken the global competitiveness of the American manufacturing industry. The combined environmental regulations will force us and other electric utilities to decide whether to retire coal fired plants, switch fuels, or install expensive control equipment to meet the environmental regulations. We are all interested in improving the environment, but the challenge is to balance known benefits with known costs while achieving the intended result in the most efficient and cost effective manner.

Our preliminary analysis of CATR indicates:

- Our existing investment of control equipment for nitrogen oxide (NOx) and sulfur dioxide (SO2) emissions will likely be insufficient to meet the new standards.
- Compliance for small systems will be expensive and difficult, mainly because of the limited time available, which is three-years to conform to the regulation.

During the short period for compliance under the EPA regulations, electric utilities with coal fired generation will struggle to compete for the limited resources (design, engineer, fabrication and construction) which in itself could increase costs in addition to:

- Add costly emission controls.
- Build replacement generation for units, or
- Worst case scenario – shut down operations.

The EPA's combination of various regulations and timelines could potentially result in a piecemeal approach instead of a consolidated, holistic effort to improve emissions. This could result in unnecessary and additional spending.

In conclusion, the total environmental compliance impacts for Big Rivers from 2012 through 2015 are estimated to create:

- A temporary generation output reduction of approximately **4.5 million** megawatt hours by 2014 due to the need to reduce emissions by compliance time while control equipment is being installed on the targeted units.
- An estimated construction cost of **$785 million** in pollution control equipment.
- Cumulative rate increases of approximately **40%**.

The cumulative effect of EPA's next series of regulations will result in significant financial and ancillary impacts to western Kentucky. Since 17.3% of Kentuckians are below the national poverty level, electric rate increases associated with investments of this magnitude will create economic challenges for our members' customers. Presumably, the effect of these regulations will be thoroughly evaluated to assure they are cost effective and that the costs are not disproportionate to the benefits achieved.

My goal today is to respectfully request consideration of a delay in the implementation of the EPA regulations until all rulings have been made clear so that electric utility management can make informed decisions about how best to comply. I hope this presentation helps provide a better understanding of the impacts of the proposed EPA regulations on our business.

Mr. WHITFIELD. Thank you, Mr. Bailey.

We do have votes on the floor, unfortunately. We like to have these hearings in the morning so we are not detaining everyone, but Mr. Hess, we are going to go on and get your 5-minute opening statement and then we are going to recess. I will find out how many votes we have. But you are recognized for 5 minutes.

STATEMENT OF TIMOTHY R. HESS

Mr. HESS. Thank you, Chairman. Chairman Whitfield, Ranking Member Rush, members of the subcommittee, my name is Tim Hess. I am the Vice President of Engineered and Converting Products with Glatfelter, a specialty paper company that has been in business since the Civil War. I am a graduate of the United States Military Academy, and I have been in the paper business for 16 years.

I am testifying today on behalf of the American Forest and Paper Association. Thank you for the opportunity to discuss the challenges presented by the cumulative impact of the EPA regulations on manufacturers. We applaud this subcommittee and others for taking seriously the oversight of the laws that have been enacted. The forest products manufacturing supply chain will continue to adapt to well-reasoned regulations that are affordable and achievable. We are proud of our environmental stewardship but we cannot respond to regulations in a vacuum. Businesses in our sector must consider the global competitive environment in which they operate. They must compete for capital globally and have the time needed to build new regulatory requirements into the capital planning process. They must also be able to rely on the government so that once a regulation is in place, it will not be selectively enforced or changed within a short time frame.

Paper and wood products manufacturers are facing over 20 major regulations from EPA's Clean Air Act program alone. The pace and volume of regulation is not sustainable for the agency, the States, the companies that are required to meet them, or the Congress whose obligation it is to provide oversight.

I would like to call your attention to the diagram that I included with my written testimony of the clean air regulations in the pipeline that will affect the forest products industry manufacturing facilities. It is similar to the train wreck picture that was previously shown. A picture is worth a thousand words, and this picture gives you an idea of the complicated maze of current EPA regulatory activity and doesn't even take into account the hundreds of other regulations that we comply with every day.

As detailed in my written statement, this type of regulatory environment increases our costs, makes us less competitive in a global basis, and ultimately results in lost jobs. The forest products industry, like so many other manufacturing industries, has been hard hit by the economic crisis. Since 2006, when the housing downturn began, the forest products industry has lost 31 percent of its workforce, nearly 400,000 high-paying jobs, largely in small rural communities that can least afford to lose them. The closure of a mill in a small town has a significant ripple effect when that mill is the largest employer and a major contributor to the local taxes and community programs.

Here are a few of the many regulations we are concerned about: Boiler MACT. EPA's recently finalized Boiler MACT rule will cost our industry alone well over $3 billion and continues to ignore what real-worst best-performing boilers can achieve over the range of normal operating conditions, and while Congress authorized EPA to adopt a health-based performance approach to target controls for certain emissions below the level of concern, EPA decided not to use this authority and reversed its previous precedent. EPA is also considering redoing the pulp and paper MACTs issued a decade ago, even though MACT is supposed to be a one-time program, and we are concerned that this could add an additional $4 billion in capital costs beyond boiler MACT.

The National Ambient Air Quality Standards, known as NAAQS, program has greatly reduced emissions of criteria pollutants. Yet further tightening is underway. Even before the latest ozone standard has been fully implemented, EPA is tightening it further, 2 years ahead of the usual statutory schedule. Collectively, the revisions of all the NAAQS rules could cost the forest products industry over $8 billion in capital costs. These constantly changing air quality regulations do not allow me and my management team to make rational, long-term decisions about capital spending, particularly for projects that do not return profits to the bottom line.

We applaud this subcommittee's efforts to shine a light on the impacts of the EPA regulations. As recognized in the TRAIN Act, agencies typically look at any given regulation in a stovepipe and fail to consider the cumulative regulatory impact on competitiveness and jobs. Accordingly, the subcommittee may want to consider the impacts of regulation on the loss of human capital such as when workers' skills are no longer marketable because manufacturing are lost in the United States. This could include real costs such as lost wages and the cost of new job training, and they could be added to the compliance costs in the analysis.

In summary, we know that the current wave of pending new regulations is unsustainable. Living with such an uncertain regulatory environment not only costs current jobs but also prevents new jobs from being created. Companies frequently find themselves tangled in a web of rules that result in a decision not to make an investment because of uncertainty about the regulatory process or they decide to invest overseas. Others rule the decide hoping that the rule they are making decisions under today will still be in place when the project is complete. Investments in energy efficiency projects, mill modernization programs and new biomass boilers have already been impacted by Boiler MACT and NAAQS. Unfortunately, it is easier to see the jobs that are lost after the fact but the greatest damage may be the unknowable: the projects never built, the products never made, the jobs never created or the entrepreneur ideas drowned in a sea of red tape.

Thank you for taking the time to listen to some of the many regulatory challenges the forest products industry is facing.

[The prepared statement of Mr. Hess follows:]

Statement of Timothy Hess
Vice President, Engineered & Converting Products, Glatfelter
On Behalf of the American Forest & Paper Association
House Subcommittee on Energy and Power
Hearing on The American Energy Initiative
April 7, 2011

Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, my name is Timothy Hess. I am the Vice President of Engineered and Converting Products with Glatfelter, a specialty paper company that has been in business since the Civil War, and am here today to testify on behalf of the American Forest & Paper Association (AF&PA). Thank you for the opportunity to testify on the challenges presented by the cumulative impact of EPA regulations.

AF&PA is the national trade association of the forest products industry and advances public policies that promote a strong and sustainable U.S. forest products industry in the global marketplace. The U.S. forest products industry accounts for approximately 5 percent of the total U.S. manufacturing GDP. Industry companies produce about $175 billion in products annually and employ nearly 900,000 men and women. The industry meets a payroll of approximately $50 billion and is among the top 10 manufacturing sector employers in 48 states. AF&PA's member companies make more than 75 percent of the U.S.'s pulp, paper, paper-based packaging and wood building materials—products used every day that are made from renewable and recyclable resources that sustain the environment. The Association's membership represents the diverse spectrum of the forest products industry—from smaller family-owned mills, to large multi-product, public and private companies that manufacture pulp, paper, paperboard and wood products, to independent forest owners.

We in the forest products industry are proud of our environmental stewardship using a renewable resource to make essential products that businesses and families use every day. The forest products industry is also a national leader in renewable energy because of its efficient use of its raw material—wood, a renewable, recyclable and reusable resource. In fact, we produce and use more renewable energy than all the wind, solar and geothermal power combined. Wood biomass is used to manufacture paper and building products, and generate energy that is used to power manufacturing facilities.

We applaud this subcommittee and others for taking seriously the role of oversight of the laws that have been enacted. Many were enacted decades ago and have contributed to significant improvements in air and water quality. Forest products manufacturing is heavily regulated. We will continue to adapt to well reasoned regulations that are affordable and achievable. But we cannot respond to regulations in a vacuum. Businesses in our sector must consider the global competitive environment in which they operate. They must compete for capital globally and have the time needed to build new regulatory requirements into capital planning processes. They must also be able to rely on the government so that once a regulation is in place, it will not be selectively enforced or changed within a short timeframe.

A key issue for this committee to consider is the cumulative effect of all of the growing number of new regulations. Under the Clean Air Act alone, we are facing over twenty regulations, including Boiler MACT, that could have a dramatic impact on the sustainability of our industry. Attached to this testimony is a diagram of Clean Air Act regulations in the pipeline that will affect forest products industry manufacturing facilities. Some of these regulations are listed in the attached letter that we submitted in response to Chairman Issa's inquiry, but I should note that the letter also includes many other areas of concern, including EPA regulations on waste, greenhouse gases, and water.

In most cases identified below, significant capital investment will be required for equipment needed to meet the regulation that would otherwise go to growth in manufacturing capacity and the attendant production of jobs. The suite of potential clean air regulations could prevent new expansion or upgrade of existing forest products industry facilities in the U.S.

State of the Industry

The U.S. forest products industry – both paper and wood products-- has been facing trying economic times for more than a decade. Since 2006, the forest products industry has lost 31 percent of its workforce-- nearly 400,000 high-paying jobs, primarily in small rural communities that can least afford to lose them.

U.S. production of paper and paperboard declined 10% between 2007 and 2010. While we experienced some rebound in market demand in 2010, the decline reflects the still-weak economy, competition from electronic media, and cost pressures, including government regulations.

As a result, the paper industry has earned its cost of capital in only two of the past ten years, and has been forced to restructure to meet global competitive pressures. Paper and allied products industry employment has declined by 58,000 positions, equal to 13 percent of the industry's workforce as 52 paper mills have permanently closed their doors just since 2007.

According to a research paper by the Economic Policy Institute, for every 100 paper industry jobs, an additional 325 jobs are sustained in other industries resulting from the purchase of supplies and the re-spending of worker incomes.[1] Hence, the 58,000 jobs lost in the paper industry suggest total job losses inside and outside the industry of over 250,000.

The wood products side of the industry is also facing huge economic challenges due to the collapse of homebuilding, the leading end-use market for wood building products. Employment in the wood products manufacturing sector has declined by 31 percent (152,000 jobs) since the end of 2007, and by 45 percent (280,000 jobs) since the end of 1999. It will likely take years for wood product markets to fully recover.

[1] Economic Policy Institute, "Updated Employment Multipliers for the US Economy" (2003).

Since many wood and paper mills are located in rural areas where these high-paying jobs cannot be replaced, the effect of these job losses on local rural communities can be especially devastating. The closure of a mill in a small town has an enormous ripple effect when that mill is the largest employer and a major contributor to local taxes and community civic programs.

Government regulations that are not cost-effective can exacerbate what is already a bad situation. For instance, a recent study conducted for AF&PA by Fisher International concluded that several upcoming Clean Air rules other than Boiler MACT would cause 62 additional mills to close and 26,778 paper industry jobs to be lost. If supplier jobs and jobs associated with the re-spending of worker incomes are included, total job losses could reach nearly 114,000. Moreover, the recently announced "final" boiler MACT rules would likely cause thousands of additional job losses in the forest product industry and its related supply chain.

Job losses due to regulations can have long-term impacts on workers' lives as well as on the U.S. economy. Economist Jacob Kirkegaard of the Peterson Institute for International Economics observed that workers' skills atrophy as a result of unemployment because they are less able to keep up with developments in their field. And if the worker is able to shift to a new field, the human capital associated with the former occupation may wind up being of little or no use.[2]

Boiler MACT

The so-called "Boiler MACT" is a regulation issued under the Clean Air Act Amendments of 1990. The statute requires that EPA regulate hazardous air pollutants from emission sources, including boilers, using maximum achievable control technology ("MACT"). Although most boilers already are well controlled for key pollutants, EPA's Boiler MACT rule will require more than 90% of boilers to make significant changes. For the forest products industry, our initial capital cost estimate of the final rule is well over $3 billion. By comparison, forest product industry pre-tax profits averaged $3.6 billion from 2008-2010.

Although there have been some improvements from the proposed rules, the final rules are still not achievable or affordable for our industry. As our technical experts delve deeper, their concerns about achievability and cost have only grown. Although the limits for mercury and hydrochloric acid became more reasonable for biomass boilers, the carbon monoxide limits for stoker fired biomass boilers actually became more stringent. When burning wet biomass, it will be very challenging, even with the combustion improvements EPA assumes necessary, to meet the more stringent limits.

Congress gave EPA the authority in section 112(d)(4) to set alternative standards for pollutants with health thresholds in cases where the regular MACT limits may be "far

[2] (See 'Economists Suggest Long-Term Unemployment Holds Hidden Dangers," 11/19/2010) www.job.com/career-advice/employment-news/economists-suggest-long-term-unemployment-holds-hidden-dangers.html

more stringent than necessary to protect public health...". Boiler MACT is exactly the type of situation Congress had in mind when giving EPA this authority. This rule covers boilers used in numerous industries and in a wide variety of applications and settings. The economics of each setting vary widely and impact a broad cross section of the economy.

While Congress gave EPA the ability to target and adjust controls for certain emissions where risks are low, EPA has failed to use this authority despite repeated requests by hundreds of members of Congress, Governors and stakeholders. Any reservations about setting health based emission limits have been addressed in public comments. AF&PA provided toxicological verification that several of the pollutants have health effect thresholds and suggested a way to account for any additive effects among these pollutants. We also challenged EPA's perspective that any risk assessments must look beyond the boilers covered in this MACT when by definition MACT is limited to the source category. If EPA provides a health based emission limitation for threshold pollutants such as manganese and hydrogen chloride that is set for each qualifying facility, then costs could be significantly reduced while still protecting public health.

We think EPA made the right choice in relying on cost-effective work practices for more boilers in the final rule, such as gas units, biomass boilers at small mills and back-up boilers, providing an affordable way to reduce emissions. EPA could have and should have set flexible work practices for dioxin as well. Some of our mills are not even sure they can measure it at the very low limits being imposed, let alone control for it. Moreover, the final rule barely begins to account for the tremendous variability among boilers by establishing additional subcategories and using new emissions data to set slightly more realistic limits. EPA continues to ignore what real-world, best performing boilers can achieve over the range of normal operating conditions. EPA should ensure that limits are technically achievable for biomass and new boilers to encourage the use of a broad range of fuels and foster new investment in state-of-the-art boilers.

Finally, as more fully described below, in its final Non-Hazardous Secondary Materials rule, EPA has created a confusing and inappropriate definition for secondary materials that are solid wastes rather than fuels when burned, shifting many boilers under the more onerous Incinerator MACT. This also will cause various renewable biomass residuals to be classified as "solid waste," resulting in them being landfilled rather than used as alternative fuels, as they traditionally have been, which is essential to the economic sustainability of some operations.

The only new boilers that may be viable are those that burn natural gas. After many concerns were expressed about the proposed natural gas standards, EPA eventually adopted much more flexible work practices. The net effect may be to curtail energy options for new boilers. This not only puts all our eggs in one energy basket but also raises serious practical problems. Many boilers simply do not have access to natural gas because the infrastructure is not there. Moreover, the economics of some manufacturers (including forest products) depend on the ability to use diverse energy sources. Our future will be jeopardized if we cannot use biomass in new boilers. We believe that penalizing renewable clean fuels like biomass, and thereby increasing the

use of fossil fuels, is counterproductive and contrary to the Administration's own energy policy.

We anticipate that the capital cost for all manufacturing from the Boiler MACT rule could be well over $11 billion, plus billions more in annual operating costs. A wide range of manufacturers and the jobs they sustain would be impacted, as well as municipal utilities, universities, hospitals, federal facilities and other facilities that operate larger boilers.

EPA Jobs Study on Boiler MACT

Much has been reported about the dueling jobs studies on the Boiler MACT regulations. The EPA recently released a Regulatory Impact Analysis, which indicated that the final Boiler MACT rule would range from destroying 4,100 jobs to creating 8,500 jobs. The midpoint of the range was 2,200 jobs created. EPA's jobs analysis was based on a 2002 paper by Morgenstern, Pizer and Shih published in the *Journal of Environmental Economics and Management.*

In using the Morgenstern study, the agency relied on a model that was predicated on data from the1979-1991period. While the Morgenstern findings may have indeed been relevant for the 1980s when people had to use paper and foreign competition was not as keen, it needs to be rethought and updated to reflect today's reality. With increased foreign competition, electronic competition, and a weak economy, the paper industry is in a far different place today as compared with the 1980s. The EPA's approach fails to recognize that reality. We believe an updated methodology should be used for assessing job losses or gains reflecting today's global competitive factors.

As explained earlier, the U.S. forest products industry has already lost a large percentage of its workforce. If more mills are forced to close their doors permanently we will lose additional high paying, tax generating jobs. Exports will drop and imports will increase since no other country is contemplating requirements this extreme.

Other Pending Clean Air Act Regulations

- Pulp and Paper MACT and Residual Risk:

EPA is considering redoing the Pulp and Paper MACTs issued a decade ago even though MACT is supposed to be a one-time program. Given the stringency and unachievability of the Boiler MACT, we are very concerned that a similar approach will lead to a rule with over $4 billion in additional capital costs. EPA's obligations are to look at the health risks that remain after MACT, not a total MACT do-over. We believe that the original MACTs reduced emissions significantly (and at great expense) to the point where remaining risks are generally very low based on the extensive information the industry has provided EPA. In addition, any plans to regulate hydrogen sulfide (which could cost close to $3 billion) should be abandoned, since emissions are below levels of concern. Given the accelerated consent decree schedule EPA agreed to for issuing a rule, EPA should focus its resources on making a "Residual Risk" determination using reasonable risk assessment methods, data and assumptions, taking costs into account as Congress required in the Clean Air Act.

- National Ambient Air Quality Standards (NAAQS):

The National Ambient Air Quality Standard (NAAQS) program has greatly reduced emissions of criteria pollutants. Air quality has improved dramatically for all six NAAQS pollutants at significant cost to industry bringing many areas into attainment – and more reductions are on the way under existing programs. The forest products industry has been part of these reductions, reducing sulfur dioxide and nitrogen oxides by between 25 and 35 percent in the last fifteen years alone, as well as cutting emissions of hundreds of thousand of tons of particulate matter (PM) and volatile organic compounds (VOCs).

Yet, further tightening of the NAAQS is underway, with the short-term NOx and SO_2 NAAQSs finalized last year and the ozone and PM NAAQS scheduled for this year. Collectively, these NAAQS revisions could cost the forest products industry over $8 billion in capital costs. Of equal concern is the permitting gridlock caused when mills cannot satisfy modeling criteria for plant improvements (even ones that reduce emissions), preventing mill modernization and damaging competitiveness. EPA's standards are so close to background levels for some pollutants that even the dust from roads around a mill are enough to exceed modeling parameters and potentially stop permit revisions.

Under the Clean Air Act, Congress directed EPA to consider, every five years, whether any changes are needed to the NAAQS. In March 2008, EPA replaced the 1997 ozone standard with a new, more stringent standard. Even before that standard will be fully implemented, EPA is considering tightening it further -- two years ahead of the usual statutory schedule. Last month, 38 newly elected Congressmen wrote to Administrator Jackson citing concerns about the impact on jobs and the economy and asking that she withdraw the proposed ozone rule and instead conduct a full science review under the usual five year schedule. A similar bipartisan letter signed by 51 House Members was sent to the Administrator last November. Given the significant economic burden imposed by the ozone NAAQS on the forest products industry and the still fragile economy, we agree that deferral is warranted.

- Cluster MACT Reopening:

EPA finalized Maximum Achievable Control Technology (MACT) rules for paper mills in 1998 and 2001 but has been petitioned by environmental groups (ENGOs) to make them more stringent. The Clean Air Act created MACT as a one-time program, and EPA has met its obligation for paper mills. EPA should focus on programs that are required under the Act and not put additional burdens on the paper industry by reopening the Cluster MACTs.

- Wood MACT:

In 2004, EPA promulgated the Plywood and Composite Wood Product MACT (so called Wood MACT) which required 90% reductions in certain hazardous air pollutant (HAP) emissions. In 2007, the D.C. Circuit Court of Appeals rejected a risk-based option that

could have allowed wood product mills to avoid controls where risks were demonstrated to be safe. That same court concluded that emission standards should be set for all process equipment at wood product mills. Unfortunately, gas-fired control devices (incinerators) have been widely installed to meet Wood MACT and other Clean Air Act programs such as New Source Review. These incinerators not only consume $100Ks of fuel each year and cost millions to install, but also emit greenhouse gases and NOx largely in "NOx limited" areas. A life cycle inventory documented the negative nature of these systems, concluding that they do more harm than good. To make matters worse, more incinerator controls may be required in the future for the remanded units covered by Wood MACT. EPA should explore alternative policies that eliminate the need for existing and additional gas fired controls, such as use of work practices and limits that can be met using biological control systems.

Numerous other EPA rules on greenhouse gases, solid waste, and water are attached to the appendix to this testimony.

The TRAIN Act

We applaud the subcommittee's effort to shine light on the cumulative and incremental impacts of EPA regulations. Agencies and policymakers typically consider any given regulation in a stovepipe and fail to consider the cumulative impact of multiple regulations on the competitiveness and sustainability of businesses and other regulated entities and the related adverse impacts on jobs.

The "Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011" would require an interagency analysis and study of the cumulative effects of EPA rules. The Act focuses the study on "the global economic competitiveness of the United States, particularly with respect to energy intensive and trade sensitive industries." The forest products industry is both trade sensitive and energy intensive, so unnecessary, excessive regulation can seriously undermine the competitiveness of the industry.

The TRAIN Act also will examine the impact of regulations on employment, "including secondary impacts associated with energy prices and facility closures." As discussed above, the closure of a forest product facility not only involves the direct loss of high paying jobs, but also can cause a negative ripple effect throughout the supply chain and in the surrounding community. When these high-paying jobs cannot be replaced, a small rural town can reach an economic "tipping point."

Given the state of the economy and the widespread concern about jobs, one might have expected more attention to be paid to the employment effects of the cumulative regulatory burden. It is our understanding that the longstanding guidance for regulatory analysis, OMB Circular A-4, does not specifically ask agencies to examine job loss from regulatory policies. While Executive Order 12866 does mention the adverse impact on jobs as part of the definition of an economically significant rule, and in the required analysis for them, we are not aware that job destruction has ever been directly addressed to the point where it really made a difference in the outcome of a rule or regulatory program being developed. Accordingly, the subcommittee may want to consider the impacts of the cumulative and incremental regulatory burden on the loss of

human capital, such as when worker's skills are no longer marketable, because, for example, manufacturing jobs are lost in the U.S. This could include real costs such as lost wages and the cost of new job training, and they could be added to compliance costs in the analysis.

Conclusion

Living with such an uncertain and costly regulatory environment can not only cost current jobs, but it can prevent new jobs from being created. Companies frequently find themselves tangled in a web of rules and restrictions that result in the decision to simply not make an investment because of the ambiguity and uncertainty of the regulatory process. Others roll the dice and hope that the rule they are making decisions under today will still be in place when their project is completed. When regulations such as Boiler MACT and NAAQS create great uncertainty and are not affordable or achievable, investing in an energy efficiency project, mill modernization programs, or a new biomass boiler can be very risky, preventing job creation in rural communities that desperately need it. Unfortunately, it is easier to see the jobs that are lost after the fact. But the greatest damage may be unknowable -- the loss of projects that are never built, the products never made, the jobs never created, or the entrepreneurial ideas that drown in the sea of red tape.

EPA has the power to protect public health while using its statutory authority to create more affordable programs. We hope the subcommittee's efforts will help encourage EPA to focus on the highest priorities.

Thank you for taking the time to listen to some of the many regulatory challenges the forest products industry is facing.

APPENDIX
ADDITIONAL EPA REGULATORY ACTIONS SIGNIFICANTLY AFFECTING THE FOREST PRODUCTS INDUSTRY

Greenhouse Gas Regulations

- EPA Greenhouse Gas (GHG) Regulation Under the Clean Air Act:

Effective January 2, 2011, EPA's regulation of GHGs from stationary sources under the Prevention of Significant Deterioration (PSD) and Title V programs broke with longstanding precedent for biomass carbon neutrality, treating the combustion of biomass identically to the combustion of fossil fuels. EPA chose to treat biogenic emissions the same as emissions from fossil fuel in the Tailoring Rule. Two-thirds of the energy needs of forest products mills are met through wood biomass residuals. Counter to Administration objectives, EPA's treatment of biogenic emissions ignores the renewability of the resource and stymies investment in renewable energy. EPA subsequently postponed regulation of biogenic CO_2 emissions for three years while it conducts a study of the science and technical issues associated with these emissions. EPA plans to develop its own GHG accounting framework for biogenic emissions, differentiating different types of feed stocks based on their net emissions to the atmosphere over business as usual levels, specific time frames and geographic regions. This accounting framework will, in effect, regulate and significantly limit the use of forests and other biomass for renewable energy. There is currently a significant scientific foundation and policy precedent to support the carbon neutral status of biomass combustion. U.S. EPA and Forest Service data unequivocally show that land in the U.S. is a significant net sink for CO_2 – not a source that should be regulated. Furthermore, Congress, not EPA, should determine renewable energy policy for the country. EPA should uphold the principle of carbon neutrality and leave renewable energy policy to Congress.

- EPA Greenhouse Gas Mandatory Reporting Rule:

Facilities must report their 2010 GHG emissions beginning September 30, 2011. Unlike other regulations, EPA has not allowed facilities to propose alternative methods for calculating emissions or allowed *de minimis* emissions levels under which reporting is unnecessary. This inflexibility makes the rule more expensive to implement than is necessary. EPA has also proposed to make public individual facility inputs to GHG emissions calculations and production data which are traditionally considered confidential business information. Making such energy and production data available to the public will enhance the ability of foreign and domestic competitors to gain insight into production costs and will potentially impact pricing decisions in the marketplace.

Waste Regulations:

- Non-Hazardous Secondary Materials:

In February, as part of the Boiler MACT rules, EPA promulgated definitions for non-hazardous secondary materials for the first time, which determines the materials that are considered fuels under Boiler MACT and those that are considered solid wastes, and thus, regulated under the Commercial and Industrial Solid Waste Incinerators (CISWI) rules. Because the CISWI rules are more onerous, and mills want to avoid the stigma of having their boilers reclassified as incinerators in permitting reviews, many mills will stop burning solid wastes. In the forest products industry, most of these secondary materials are biomass residuals that are carbon neutral, renewable, and have been used safely for decades as fuels. In fact, they are critical to the sustainability of some mill operations. However, because the NHSM arbitrarily requires these materials to be comparable in terms of their constituents (called contaminants) to "traditional fuels" under the rule's "legitimacy criteria," they will get branded wastes. Yet, organic "contaminants" are completely combusted in boilers while other "contaminants" will be effectively controlled under Boiler MACT. In other programs, EPA and other agencies are trying to encourage the use of alternative fuels with the positive attributes of these biomass residuals to replace fossil fuels. EPA should modify its approach for classifying biomass residuals, such as resinated wood, paper process residuals, wastewater treatment residuals, and processed construction debris, as solid wastes by dropping the contaminant comparability test so more materials can be safely used as fuels and not truly wasted by being landfilled.

- Coal Combustion Residuals:

EPA has proposed to regulate coal combustion residuals from the electric utility industry as either hazardous or non-hazardous solid waste. Although the forest products industry would be exempt under the current proposal, states have indicated they would not differentiate between utility and non-utility residuals. EPA could regulate these materials under the non-hazardous waste provisions and modify the proposal to make those requirements consistent with the degree of harm posed by such residuals. Further, strict regulation under the hazardous waste regulations is not necessary to address the risks posed by coal combustion residuals. The forest products industry and other industries will pay increased electricity costs passed on by utilities if EPA chooses the hazardous waste option.

Water Regulations

- Florida Nutrient Standards:

Despite the fact that the State of Florida was making significant progress establishing its own nutrient standards, EPA promulgated extremely stringent numeric nutrient criteria for nutrients (nitrogen and phosphorous) for certain Florida waters based on a methodology that is not scientifically defensible. Stakeholders have estimated compliance with the rule will cost billions of dollars and will require expenditures for

cleaning up waters that are not impaired. EPA states that it does not intend to take over other state nutrient programs and promulgate federal numeric nutrient criteria in those states. Nonetheless, EPA has indicated that the Florida methodology should be viewed as a national precedent, and EPA is forcing other states to adopt numeric criteria, while also limiting implementation options. EPA should revise the methodology to better account for the lack of a stressor/response relationship in its data for certain waters and should allow states more flexibility in implementing the criteria.

- Cooling Water Intake Structures (CWIS) Rulemaking:

Last week, EPA issued a 413 page proposed CWIS rule applicable to certain utilities and manufacturers, including the pulp and paper industry. We are still analyzing the proposal to determine its impacts, but one thing is certain—many more industry facilities will face CWIS requirements in their water permits than would have been the case under the rule applicable to these facilities issued in 2006 (EPA is revising the rules in light of litigation, including a Supreme Court ruling). At that time, EPA determined that the costs of national categorical standards applicable to a more limited number of facilities would be "wholly disproportionate to the benefits." Yet in this proposed rule, EPA would regulate the CWIS of much smaller facilities, capturing a much larger segment of the industry within the scope of the rule.

- "Waters of the U.S." Guidance:

For nearly a decade beginning in 2002, legislation has been introduced in the House and Senate that would fundamentally alter the scope of the Clean Water Act and expand federal agency Clean Water Act jurisdiction. None of the bills ever came to a vote in either Chamber, and while one committee did consider a proposal, the measure died and was never brought to the floor. The Administration is now developing guidance that addresses similar issues raised in the bills; press reports providing a draft of the guidance strongly suggest that the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers intend to significantly expand their regulatory control over many waters, including waters now considered entirely under state jurisdiction. The Administration should not legislate by guidance. At a minimum, this issue should be addressed in rulemaking, as opposed to guidance.

- Analytical Method for Polychlorinated Biphenyls (PCBs):

Polychlorinated biphenyls (PCBs) are a "legacy" pollutant; production was banned by Congress and EPA decades ago. However, PCBs in extremely low levels are ubiquitous in the environment. EPA has proposed an analytical test method that purports to measure in the very low range of parts per quadrillion, which is below the national EPA standard. Once the method is final and dischargers must use it for compliance, many municipal and industrial dischargers will find PCBs in their effluents at levels above the national standard. This will ultimately lead to permit limits with which compliance will be either impossible to achieve or unreasonably expensive. EPA should not issue the method until it adequately responds to the scientific questions raised in

comments on the proposal. EPA also should issue flexible permit implementation procedures that acknowledge and address the ubiquitous nature of PCBs.

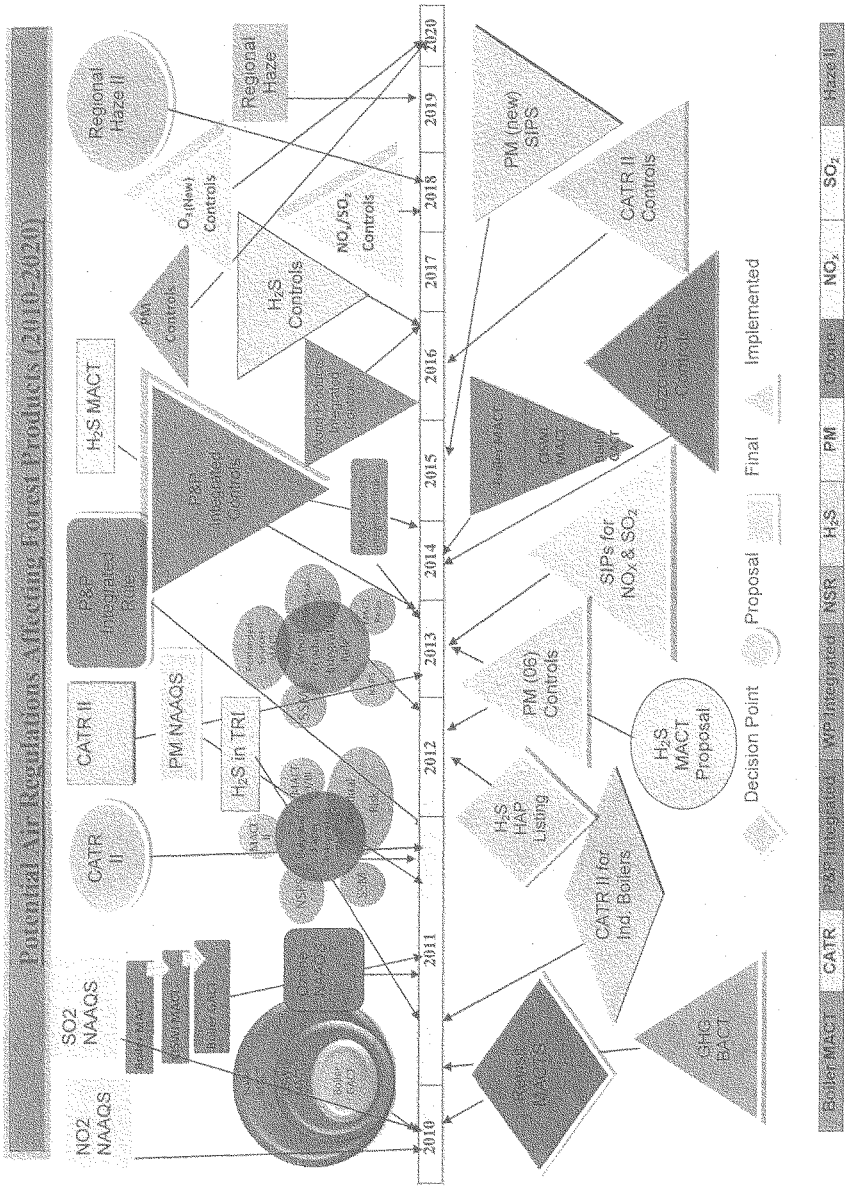
- Chesapeake Bay Total Maximum Daily Load (TMDL):

At the end of 2010, EPA issued the final TMDL for the Chesapeake Bay. A TMDL is a calculation of the maximum amount of a pollutant that a water body can assimilate and still maintain water quality standards. As part of the TMDL process, EPA usurps the states' traditional role of TMDL implementation by threatening heavy-handed measures if certain clean up milestones are not met. EPA should withdraw the measures and allow states the flexibility to implement the TMDLs, as contemplated by the Clean Water Act.

Sound Science

- Integrated Risk Information System (IRIS) Assessments:

As the Administration has recognized, sound science is the foundation of an effective regulatory system. In Executive Order 13563, President Obama directed that "each agency shall ensure the objectivity of any scientific and technological information and processes used to support the agency's regulatory actions." Accordingly, scientific integrity must be the backbone of EPA's IRIS assessments. Assessments for chemicals such as methanol, formaldehyde, dioxin, hydrogen sulfide, acrolein and acetaldehyde have a major impact on regulatory costs for many sectors of the economy and deserve objective and unbiased development and review.


Potential Air Regulations Affecting Forest Products (2010-2020)
NO2 NAAQS
SO2 NAAQS
CATR II
PM NAAQS
H2S in TRI
H2S MACT
P&P Integrated Rule
Regional Haze II
Regional Haze
O3 (New) Controls
PM Controls
H2S Controls
NOx/SO2 Controls
PM (new) SIPs
CATR II Controls
SIPs for NOx & SO2
PM (06) Controls
H2S HAP Listing
H2S MACT Proposal
CATR II for Ind. Boilers
GHG BACT
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Decision Point
Proposal
Final
Implemented
Boiler MACT
CATR
P&P Integrated
WP Integrated
NSR
H2S
PM
Ozone
NOx
SO2
Haze II

Mr. WHITFIELD. Mr. Hess, thank you, and I apologize once again. We do have five votes, and I expect it will probably take 45, 50 minutes at a minimum. So there is a deli downstairs, there is a restaurant, so I hope that you all can find something to entertain yourselves until we get back.

But once again, thank you. It is 10 to 2:00, so we will certainly try to be back at about 15 to 3:00.

[Recess.]

Mr. WHITFIELD. We will call the meeting back to order, and Dr. Ridgway, you are recognized for 5 minutes for your opening statement.

STATEMENT OF ROBIN MILLS RIDGWAY

Ms. RIDGWAY. Chairman Whitfield, Ranking Member Rush, members of the committee, good morning, or good afternoon, rather. Thank you for inviting me here to testify today. My name is Robin Mills Ridgway. I am Director of Environmental Health and Safety Regulatory Compliance with physical facilities at Purdue University in West Lafayette, Indiana. I hold a Ph.D. in environmental engineering from Purdue, and I am a licensed professional engineer in Indiana. I serve as a resource for environment regulatory compliance at Purdue, and in particular I analyze the impacts of current and upcoming regulations on Purdue operations and proposed projects. I also participate in rulemaking activities at the State and federal level to assist the university with planning.

Purdue University in West Lafayette is like a small city. With 47,000 students and an expansive research infrastructure, the university has many support and research activities that are covered by EPA regulations. Just a quick list of some of the peripheral areas that I also oversee, we have a 1,600-acre multi-species confined-animal feed operation, which is covered by EPA regulations. We have a federally permitted hazardous waste treatment, storage and disposal facility that handles 188,000 pounds of hazardous waste annually. We have a campus stormwater permit that covers runoff from campus as well as we own and operate a public water supply on campus.

One of the other facilities on campus that I am very involved in is our combined heat and power facility. It is a 41-megawatt combined heat and power facility that is primarily coal-fired and it supplies nearly all of the campus heating steam, chilled water, and on average 60 percent of the campus's electricity needs. This highly efficient facility holds a point source MPDS permit and we also have several, many Clean Air Act regulations that apply to us, and I will just list these off. The New Source Performance Standards, the Boiler MACT, both of them, the one that came and then was vacated and then came again, the Rice MACT that covers emergency generators, greenhouse gas reporting, greenhouse gas permitting as part of the PSD program, and Purdue's utility plant boilers are also regulated as non-electric utility generating units, non-EGUs, under the NO_X budget training program, which is now the vacated CARE, which will soon be the transport program, so it has sort of evolved.

EPA has also just recently proposed a coal ash regulation, and although they say quite clearly in the regulation that is targeted

at electric utilities, I think we all know that industrial facilities will also be pulled under this regulation as the States move to implement the program. I don't believe that they will differentiate from source.

A core part of my position is monitoring regulatory developments and apprising the university administration of impacts or more often projected impacts for planning purposes. Because of our long planning timelines, I am frequently asked to look out 5 and sometimes 10 years. I try to predict with as much certainty as possible to make sure the administration understands the full spectrum of potential impact. As uncertainty increases, the impact spectrum broadens. The projected impact of layered regulations then becomes a driving factor in decision-making, potentially causing our administration to delay a decision until certainty is reached.

We recently canceled a clean coal boiler project that is a good example of this potential outcome. The project followed a multiple-year planning timeline, which is typical of large capital projects at a State university. By the time the project was to be commenced, the regulatory landscape had changed and the likelihood of future regulations caused the board of trustees to actually cancel the project in February of 2011.

The piling on of regulations impacts continuance and expansion of highly efficient district energy, whether it be biomass, clean coal or natural gas, combined heat and power. Protection of the environment and enhancement of energy supply takes a menu of approaches. Each facility and location is different.

The planning challenges associated with a rapidly changing regulatory landscape are not unique to a university. However, universities cannot relocate or consolidate operations like a for-profit manufacturer might be able to nor are we able to pass the costs on to a customer. Our students are our customers, so the added costs of compliance or additional purchased utilities fall back on the taxpayers. We are committed to providing an educational foundation for our students as economically as possible, and the key to good fiscal stewardship is careful long-term planning.

Mr. Chairman, I thank you for this opportunity to testify and would be pleased to answer any questions that the committee may have.

[The prepared statement of Ms. Ridgway follows:]

Testimony of
Robin Mills Ridgway, Ph.D., P.E.
Director of Environmental Health and Safety Regulatory Compliance
Purdue University

Before the
House Committee on Energy and Commerce, Subcommittee on Energy and Power
"The American Energy Initiative"
Thursday April 7, 2011

Chairman Whitfield, Ranking Member Rush, Members of the Committee, good afternoon.

Thank you for inviting me to testify today. My name is Robin Mills Ridgway. I am the Director of Environmental Health and Safety Regulatory Compliance with Physical Facilities at Purdue University. I hold a PhD in environmental Engineering and am a licensed professional engineer in Indiana.

I serve as a resource for environmental regulatory compliance at Purdue, and in particular analyze impacts of current and upcoming regulations on Purdue operations and proposed projects. I also participate in rulemaking activities at the state and federal level to assist the University with planning.

Purdue University in West Lafayette, IN is like a small city. With 47,000 students and an expansive research infrastructure, the University has many support and research activities that are covered by Environmental Protection Agency ("EPA") regulations:

- a 1600 acre multi species confined animal feeding operation with swine, poultry, dairy and beef operations. This operation is covered by state level animal feeding rules and EPA confined animal feeding operation ("CAFO") regulations;

- a federally permitted hazardous waste treatment storage and disposal facility that handles 188,000 pounds of waste from campus labs annually.;

- a campus storm water permit that covers runoff from construction projects and other non-point source runoff from campus;

- a Purdue owned and operated public water supply that supplies drinking water to campus;

- a primarily coal fired combined heat and power facility that supplies nearly all of the campus heating steam, chilled water, and on average 60 percent of the campus electricity. This highly efficient facility holds a point source National Pollutant Discharge Elimination System ("NPDES") permit for process waste water and has various Clean Air Act regulations that currently apply or will apply to it: New

Source Performance Standard ("NSPS") Subpart D and Db, major source National Emission Standard for Industrial, Commercial, and Institutional Boilers and Process Heaters "(Boiler MACT"), National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engine Maximum Achievable Control Technology ("RICE MACT";covers our generators and air compressors), green house gas "(GHG") reporting, GHG permitting, and chlorinated fluorocarbon ("CFC") regulations. Purdue's utility plant boilers are also regulated as a non-electric generating units ("non-EGU") under the NOx budget trading program (now the vacated Clean Air Interstate Rule, "CAIR") and will likely be regulated under the Clean Air Transport Rule, though the specific impact is unclear at this time. EPA has proposed the Coal Ash Waste Rule to be an electric-utility only rule, however I believe all coal ash generators will be regulated (utilities and non-utilities) by the rule because the states are unlikely to differentiate by source.

A core part of my position is monitoring regulatory developments and apprising the university administration of impacts, or, more often, projected impacts for planning purposes. Because of our long planning timelines, I am frequently asked to look out 5 and sometimes 10 years to help guide a project. I try to predict with as much certainty as possible making sure the administration understands the full spectrum of potential impact. As uncertainty increases, the impact spectrum broadens. The projected impact of layered regulations then becomes a driving factor in decision making, potentially causing the administration to delay a decision until there is more certainty.

Our recently cancelled boiler project is a good example of this potential outcome. The Boiler 6 project followed a multiple-year planning timeline typical of a large capital project at a state university. By the time the project was to be commenced, the regulatory landscape had changed and the likelihood of future regulations with respect to coal use and ash disposal had the potential to negate cost savings originally associated with the project. As a result, the Board of Trustees cancelled the project in February of 2011.

The planning challenges associated with a rapidly changing regulatory landscape is not unique to universities. However, universities cannot relocate or consolidate operations like a for-profit manufacturer might be able to nor are we able to pass the cost along to a customer. Our students are our customers, so the added cost of compliance or additional purchased utilities falls back on the taxpayers. We are committed to providing educational foundation for our students as economically as possible and the key to good fiscal stewardship is careful long term planning.

Mr. Chairman, I thank you for this opportunity to testify, and would be pleased to answer any questions the committee may have.

Mr. WHITFIELD. Thank you, Dr. Ridgway.
Ms. Steinzor, you are recognized for 5 minutes.

STATEMENT OF RENA STEINZOR

Ms. STEINZOR. Mr. Chairman, Ranking Member Rush and members of the subcommittee, I appreciate the opportunity to testify today on the discussion draft of the Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011, known as the TRAIN Act. This legislation would convene a Cabinet-level committee to conduct a breathtakingly ambitious analysis of how regulations required by Congress might affect energy prices in the United States in 2030. A crystal ball might well prove more effective in driving these estimates.

For reasons that are left a mystery but seem amazingly misguided, the legislation ignores the benefits that would be achieved by the targeted regulations. Rules to protect public health and the environment most definitely do not have the effect of sweeping money into a pile and setting it on fire. Rather, they save the lives of millions of people, prevent many more millions from getting sick or becoming sicker, and preserve the irreplaceable natural resources without which human life would be impossible. Omitting benefits is akin to assessing our country's wellbeing by carefully counting its GDP in dollars while ignoring whether Americans have a life expectancy over 50, are well enough to go to work or school, are able to take care of each other, enjoy our leisure or leave a sustainable for our children. The Clean Air Act Amendments targeted by TRAIN are uniformly recognized as a wonderful economic bargain by experts from the right to the left of the political spectrum. According to EPA's very conservative numbers, clean air rules saved 164,300 adult lives in 2010 and will save 237,000 lives annually by 2020.

Last but not least, the TRAIN Act targets proposed Coal Ash Rule. My testimony includes a chart showing the coal ash disposal sites in the districts of the members of this subcommittee, and I urge you to take a look at it. Some of you have coal sites that are high hazard.

It is very ironic that most of the witnesses on this panel today have been talking so much about uncertainty. The TRAIN Act is funded on uncertainty and unknowability. Most of the calculations must be completed by August 2012, a date preceding by a few weeks the national Presidential elections. The studies are so ridden with uncertainty that their numbers would be not just meaningless but deceptive. The only silver lining in this quixotic effort this that it should remain Americans of the hard lesson we learned when Wall Street crash alleging large number derived from complex calculations as facts, then wrapping them up in a glossy binder to make the numbers or the facts either true or reliable. Imagine for a moment that you could muster a meeting of the most sophisticated and knowledgeable experts on global oil prices. Throw in climate scientists, military experts, geologists and the leaders of the 10 countries with the largest deposits of oil, natural gas and coal in the world. Now ask what the wholesale and retail costs of these fuels will be in 2030. You would get laughter, shrugs and protestations of disbelief that you are serious. Over the last several weeks

we have seen popular uprisings course across the Middle East sending gas prices through the roof. No one knows how these deeply rooted social cataclysms will play out, and they are likely to play a far more significant role in determining energy prices 10 or 20 years hence than the projected costs of an EPA regulation that has not even been proposed yet, and this legislation would cover rules that have not even been proposed yet.

The legislation makes the job of knowing the unknowable impossible, and it is also likely to result in exceptionally burdensome requirements on the private sector and State and local governments. In fact, I would call it in some ways the great grandmother of all unfunded mandates. Only private corporations have the information that is needed under this regulation to determine what projects have been organized and are proposed that will be affected by changes in energy prices, and the studies that are required cannot be completed without their help. Thank you.

[The prepared statement of Ms. Steinzor follows:]

TESTIMONY OF

Rena Steinzor
Professor, University of Maryland School of Law
and
President, Center for Progressive Reform (www.progressivereform.org)

before the

Energy & Commerce Committee's
Subcommittee on Energy & Power
U.S. House of Representatives

Hearing on
The American Energy Initiative
Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011

April 7, 2011

Mr. Chairman, ranking member Rush, and members of the subcommittee, I appreciate the opportunity to testify today on the discussion draft of the "Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011," known as the "TRAIN Act." The legislation would convene a cabinet-level committee to conduct a breathtakingly ambitious analysis of how regulations required by Congress might affect energy prices in the United States in 2030. A crystal ball might well prove more effective in deriving these estimates.

My testimony makes four points:

1. **Benefits ignored.** For reasons that are left a mystery but seem amazingly misguided, the legislation ignores the benefits that would be achieved by the targeted regulations. As a result, it will produce a highly prejudiced analysis of the issues at stake in those proceedings. Rules to protect public health and the environment, especially with respect to air pollution, most definitely do not have the effect of sweeping money into a pile and setting it on fire. Rather, they save the lives of millions of people, prevent many more millions from getting sick or becoming sicker, and preserve the irreplaceable natural resources without which human life would be impossible. According to a forthcoming study by Isaac Shapiro at the Economic Policy Institute, benefits exceed costs by several orders of magnitude for all of the EPA rules finalized during the Obama Administration, and proposed rules are likely to be even more beneficial. Ignoring benefits is akin to assessing our country's well-being by carefully counting its GDP in dollars while ignoring whether Americans have a life expectancy over 50, are well enough to go to work or to school, are able to take care of each other, enjoy our leisure, or leave a sustainable world for their children.

2. **The Unknowable.** The core mission of the TRAIN Act is to determine the influence of selected environmental regulations on the costs of energy in 2020 and 2030. Under the legislation, these calculations must be completed no later than August 1, 2012, a date preceding by just a few weeks the national presidential election. I say that a crystal ball would be a more effective and less expensive way to determine these figures because of the thousands of unforeseen and unforeseeable variables that must be evaluated before calculating anything that would even simulate an accurate number. The studies required by the legislation are so ridden with uncertainty that their numbers will be not just meaningless but deceptive. The only silver lining in this quixotic effort is that it should remind Americans of the hard lesson we learned when Wall Street crashed and had reinforced when BP's oil spill prevention and mitigation plan in the Gulf failed so drastically: alleging large numbers derived from complex calculations as facts, then wrapping them up in a glossy binder, does not make the numbers or the facts either true or reliable.

3. **Great grandmother of All Unfunded Mandates.** The bill's requirements are exceptionally burdensome, yet it does not fund these costs, instead creating the great grandmother of all unfunded mandates. Much of the information needed to do the studies is in the possession of state government officials and thousands of private corporations, meaning that if the studies are developed in a responsible manner, they will be called upon to contribute these massive amounts of data without compensation

for their effort. This burden is all the more insupportable because the very few calculable estimates that lurk in the bowels of the legislation are already being compiled by the Environmental Protection Agency (EPA).

4. **Closed door process.** Although the bill has the word "transparency" in its title, the proceedings of the committee it creates to invent these estimates is exempt from the Federal Advisory Committee Act (FACA), allowing members to meet secretly with biased stakeholders who are never publicly named. Precedents for this kind of Star Chamber process designed to cripple environmentally protective rules come readily to mind, including Vice President Richard Cheney's secret Energy Taskforce and Office of Information and Regulatory Affairs Administrator Cass Sunstein's Cost of Carbon Taskforce, both of which met behind closed doors and did not disclose their membership upfront.

Benefits

Regulations implementing the Clean Air Act, especially with respect to ozone and fine particulate matter that cause cardiovascular and respiratory problems throughout the population, are uniformly recognized as a wonderful economic bargain by experts from the right to the left of the political spectrum. Indeed, if you invite John Graham, former regulatory czar under President George W. Bush, to testify before you, he would agree enthusiastically with that statement.[1]

According to EPA's very conservative numbers, which dramatically understate benefits and overstate costs, clean air rules saved 164,300 adult lives in 2010, and will save 237,000 lives annually by 2020. EPA estimates that the economic value of Clean Air Act regulatory controls will be $2 trillion annually by 2020; costs of compliance in that year will be $65 billion. Air pollution controls saved 13 million days of work loss and 3.2 million days of school loss in 2010. By 2020, they will save 17 million work loss days and 5.4 million school loss days.[2]

EPA's estimates are based on exceptionally conservative assumptions regarding regulatory benefits that, if anything, low-ball these figures by orders of magnitude. For example, EPA says that when Clean Air Act protections prevent a non-fatal heart attack in a person 0-24 years old, the incident is worth only $84,000.[3] How many of the young people in this room would accept $84,000 to undergo a non-fatal heart attack or, for that matter, would pay that amount to avoid one? The millions of parents who have asthmatic children will be interested to

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[1] "In summary, CAIR [the Clean Air Interstate Rule] salvaged most of the sulfur- and nitrogen control benefits that were contained in the failed Clear Skies proposal. With projected benefits exceeding $100 billion per year, CAIR is one of the most beneficial rules in the history of OIRA. In summary, CAIR salvaged most of the sulfur- and nitrogen control benefits that were contained in the failed Clear Skies proposal. With projected benefits exceeding $100 billion per year, CAIR is one of the most beneficial rules in the history of OIRA." John Graham, *Saving Lives through Administrative Law and Economics*, 157 PA. L. REV. 395, 473 (2008). Graham's tribute to rulemaking under the Clean Air Act continues for several pages.

[2] *See* Envtl. Protection Agency, *The Benefits and Costs of the Clean Air Act from 1990 to 2020* (Mar. 2011), *available at* http://www.epa.gov/oar/sect812/feb11/fullreport.pdf.

[3] *Id.* at 5-18 to5-19 (Table 5-4).

learn that cleaning up the air to the point they can avoid a single emergency room visit is worth only $363 per asthmatic child.[4] Hospitals don't give you a plastic ID bracelet for that little, and the trip to the hospital with a breathless, frantic child is worthless in these calculations.

It's also worth noting that before a rule has been in effect for several years, estimates of compliance costs, which are typically provided by regulated industries, overstate those amounts significantly. For members interested in pursuing these well-documented problems with cost estimates, I have attached to my testimony two very interesting analyses of how pollution control technologies for pollution from coal-fired power plants have become both more affordable and far more effective under the Clean Air Act:

- U.S. Gov't Accountability Office, *Clean Air Act: Mercury Control Technologies at Coal-Fired Power Plants Have Achieved Substantial Emissions Reductions* (GAO-10-47, Oct. 2009), *available at* http://www.gao.gov/new.items/d1047.pdf
- James E. Staudt, Ph.D, Andover Technology Partners, M.J. Bradley & Assocs., *Control Technologies to Reduce Conventional and Hazardous Air Pollutants from Coal-Fired Power Plants* (Mar. 31, 2011) (prepared for NESCAUM)

I would also refer members and staff to the following sources:

- Frank Ackerman, *The Unbearable Lightness of Regulatory Costs*, 33 FORDHAM URB. L.J. 1071(2006)
- W. Harrington & R.D. Morgenstern, et al., *On the Accuracy of Regulatory Cost Estimates*, 19 J. POL'Y ANALYSIS & MGMT. 297 (2000)
- H. Hodges, *Falling Prices: Costs of Complying with Environmental Regulations Almost Always Less Than Advertised* (Econ. Pol'y Inst., 1997)
- U.S. Congress, Office of Tech. Assessment, *Gauging Control Technology and Regulatory Impacts in Occupational Safety and Health—An Appraisal of OSHA's Analytic Approach*, U.S. Gov't Printing Office OTA-ENV-635, *available at* http://www.fas.org/ota/reports/9531.pdf
- Thomas O. McGarity & Ruth Ruttenberg, *Counting the Cost of Health, Safety, and Environmental Regulation,* 80 TEX. L. REV. 1997, 2042- 44 (2002)
- Ruth Ruttenberg, *Not Too Costly After All: An Examination of the Inflated Cost Estimates of Health, Safety, and Environmental Protections*, (Public Citizen White Paper, Feb. 2004), *available at* http://www.citizen.org/documents/ACF187.pdf

As for the benefits achieved by the rules that are targeted by the TRAIN Act discussion draft, Center for Progressive Reform (CPR) Policy Analyst James Goodwin and I prepared the following summary showing how the projected benefits of the four most important rules far outnumber their estimated costs. And note please that some of the most significant benefits of these regulations were not monetized, because they frankly defy monetization. They were therefore dismissed by cost-benefit analysis as having no economic value whatsoever, a huge

[4] *Id.*

liability of cost-benefit analysis that not coincidentally always leads to understating the value of a proposed regulation.

Proposed Interstate Transport Rule

EPA's proposed Interstate Transport Rule requires power plants in 31 eastern states and in the District of Columbia to significantly reduce their emissions of sulfur dioxide and nitrogen oxide pollution. These pollutants contribute to the formation of ground level ozone and fine particulate matter—both of which are extremely harmful to public health and the environment—which travel long distances across state lines, making it difficult for downwind states to comply with national clean air standards

- **Total monetized benefits:** $110 billion and $290 billion by 2014.[5]
- **Costs:** $2.0 billion to $2.2 billion.[6]
- **Health impacts of fine particulate matter:**
  - Fine particulate matter "contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into your lungs, and some may even get into your bloodstream."[7]
  - Ingestion of fine particulate matter can cause "premature death in people with heart or lung disease."[8]
- **Health benefits of reduced fine particulate matter**[9]:
  - 14,000 to 36,000 fewer premature mortalities
  - 9,200 fewer cases of chronic bronchitis
  - 22,000 fewer non-fatal heart attacks
  - 11,000 fewer hospitalizations (for respiratory and cardiovascular disease combined)
  - 10 million fewer days of restricted activity due to respiratory illness
  - 1.8 million fewer work-loss days
- **Health impacts of ozone:**
  - "Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue."[10]

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[5] Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, 75 Fed. Reg. 45210, 45344 (proposed Aug. 2, 2010) (to be codified at 40 C.F.R. pts. 51, 52, 72, 78, and 97).
[6] *Id.* at 45348.
[7] Envtl. Protection Agency, *Particulate Matter: Health and Environment*, http://www.epa.gov/pm/health.html (last visited Apr. 5, 2011).
[8] *Id.*
[9] Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, 75 Fed. Reg. 45210, 45346 (proposed Aug. 2, 2010) (to be codified at 40 C.F.R. pts. 51, 52, 72, 78, and 97).
[10] Envtl. Protection Agency, *Ground-Level Ozone: Health and Environment*, http://www.epa.gov/air/ozonepollution/health.html (last visited Apr. 5, 2011).

- **Health benefits of reduced ozone**[11]:
  - 50 to 230 fewer premature mortalities
  - 690 fewer hospital admissions for respiratory illnesses
  - 230 fewer emergency room admissions for asthma
  - 300,000 fewer days with restricted activity levels
  - 110,000 fewer days where children are absent from school due to illnesses
- **Environmental benefits** (not quantified or monetized)[12]:
  - Reduced acid rain, which harms rivers streams, and forest ecosystems
  - Reduced ozone damage to vegetation

Proposed Ozone NAAQS

EPA's proposed revision of the ozone National Ambient Air Quality Standard (NAAQS) would reduce the allowable 8-hour primary standard (a standard designed to ensure that pollution levels are kept low enough to protect public health) from 0.075 parts per million (ppm) to between 0.060 and 0.070 ppm in accordance with the recommendations of the EPA's Clean Air Science Advisory Committee (CASAC). (The agency is also considering lowering the standard even more to 0.055 ppm, as well as maintaining the existing standard.)

- **Total monetized benefits:** Between $53 billion and $160 billion (0.055 ppm standard) to between $6.9 billion and $18 billion (0.075 ppm standard).[13]
  - Monetized benefits include reduced health effects from reduced exposure to ozone, reduced health effects from reduced exposure to fine particulate matter, and improvements in visibility.[14]
- **Costs:** Between $78 billion and $130 billion (0.055 ppm standard) to between $7.6 billion and $8.8 billion (0.075 ppm standard).[15]
- **Health benefits of rule**[16]**:**
  - 760 to 22,200 fewer premature mortalities
  - 470 to 3,200 fewer cases of chronic bronchitis
  - 1,300 to 7,500 fewer nonfatal heart attacks
  - 88,000 to 600,000 fewer work-loss days
  - 190,000 to 3.7 million fewer school loss days

NESHAP for Major Sources: Boilers

EPA's rule establishing National Emissions Standards for Hazardous Air Pollutants (NESHAP) for major source boilers (*i.e.*, larger boilers used to power large industrial and commercial

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[11] Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone, 75 Fed. Reg. 45210, 45346-47 (proposed Aug. 2, 2010) (to be codified at 40 C.F.R. pts. 51, 52, 72, 78, and 97).
[12] *Id.* at 45349-52.
[13] Envtl. Protection Agency, *Summary of the updated Regulatory Impact Analysis (RIA) for the Reconsideration of the 2008 Ozone National Ambient Air Quality Standard (NAAQS)* S1-4 (Table S1.1) (2010), *available at* http://www.epa.gov/ttn/ecas/regdata/RIAs/s1-supplemental_analysis_full.pdf.
[14] *Id.* at S1-3.
[15] *Id.* at S1-4 (Table S1.1).
[16] *Id.* at S2-24 (Table S2.13),S3-5 (Table S3.1).

facilities) requires these facilities to significantly reduce their emissions of toxic air pollutants, which include mercury, other metals, polycyclic organic matter (POM), and dioxins.

- **Total monetized benefits:** Between $20 billion and $54 billion.[17]
  - "The benefit categories associated with the emission reduction anticipated for this rule can be broadly categorized as those benefits attributable to reduced exposure to hazardous air pollutants (HAPs) and those attributable to exposure to other pollutants. Because we were unable to monetize the benefits associated with reducing HAPs, all monetized benefits reflect improvements in ambient PM2.5 and ozone concentrations. This results in an underestimate of the total monetized benefits."[18]
- **Costs:** $1.5 billion.[19]
- **Health co-benefits of the rule**[20]:
  - 2,500 to 6,500 fewer premature mortalities
  - 1,600 fewer cases of chronic bronchitis
  - 4,000 fewer nonfatal heart attacks
  - 1,910 fewer hospitalizations (for respiratory and cardiovascular disease combined)
  - 2,400 fewer emergency room visits
  - 310,000 fewer work-loss days
  - 810 fewer school loss days
- **Un-quantified and un-monetized benefits of the rule**[21]:
  - The direct health benefits from reducing hazardous air pollutants (*e.g.*, mercury, hydrogen chloride, hydrogen cyanide, toluene, formaldehyde, polycyclic aromatic hydrocarbons, dioxins, etc.):
    - Various forms of cancer
    - Noncancer health effects can include neurological, cardiovascular, liver, kidney, and respiratory effects as well as effects on the immune and reproductive systems
  - Reduced ozone damage to vegetation

Proposed NESHAP: Utilities

EPA's proposed NESHAP for utilities (*i.e.*, large power plants) requires these facilities to significantly reduce their emissions of toxic air pollutants, which include mercury (Hg), arsenic, chromium, nickel, hydrogen chloride (HCl), and hydrogen fluoride (HF).

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[17] National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 76 Fed. Reg. 15608, 15651 (Mar. 21, 2011) (to be codified at 40 C.F.R. pt. 63).
[18] *Id.*
[19] *Id.* at 15654.
[20] *Id.* at 15652 (Table 5).
[21] Envtl. Protection Agency, *Regulatory Impact Analysis: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters* 7-37 – 7-57 (2011), *available at* http://www.epa.gov/ttn/ecas/regdata/RIAs/boilersriafinal110221_psg.pdf.

- **Total monetized benefits** between $53 billion and $140 billion.[22]
  - "These estimates reflect the economic value of the Hg benefits as well as the PM2.5 and CO2-related co-benefits."[23]
  - "It should be emphasized that the monetized benefits estimates provided above do not include benefits from several important benefit categories, including reducing other air pollutants, ecosystem effects, and visibility impairment. The benefits from reducing various HAP have not been monetized in this analysis, including reducing 68,000 tons of HCl, and 3,200 tons of other metals each year."[24]
- **Costs:** $10.9 billion.[25]
- **Health benefits of rule**[26]**:**
  - 17,000 fewer premature deaths
  - 11,000 fewer heart attacks
  - 120,000 fewer asthma attacks
  - 12,200 fewer hospital and emergency room visits
  - 4,500 fewer cases of chronic bronchitis
  - 5.1 million fewer restricted activity days
  - 850,000 fewer work-loss days
- **Environmental benefits of rule** (not quantified or monetized)[27]:
  - Increased agricultural crop and commercial forest yields
  - Visibility improvements
  - Reduced acid rain, which harms rivers streams, and forest ecosystems

Proposed Coal Ash Rule

Last but not least, the TRAIN Act targets EPA's proposed coal ash rule, a measure that would require utilities with coal-fired power plants to stabilize the huge dump sites where they have deposited the ash generated by such combustion.[28] U.S. power plants generate 140 million tons of coal ash annually. Byproducts of burning coal include a variety of toxic metals that are heavily concentrated in these residues, and these concentrations will increase as air pollution control technologies remove more toxic particles from the gas and deposit them in the ash. Or, in other words, substances considered to be hazardous air pollutants are transferred to land and water when the ash is disposed, causing additional environmental harm. Some of this coal ash is

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[22] Envtl. Protection Agency, *National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units* 556 (pre-publication draft of proposed rule), *available at* http://www.epa.gov/airquality/powerplanttoxics/pdfs/proposal.pdf.

[23] *Id.*

[24] *Id.* at 562.

[25] Envtl. Protection Agency, *Regulatory Impact Analysis of the Proposed Toxics Rule: Final Report* 1-1 (2011), *available at* http://www.epa.gov/ttn/ecas/regdata/RIAs/ToxicsRuleRIA.pdf.

[26] *Id.* at 1-4 (Table 1-2).

[27] *Id.* at 1-9 – 1-10 (Table 1-4).

[28] Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities, 75 Fed. Reg. 35,128, 35,211 (proposed June 21, 2010) (to be codified at 40 C.F.R. pts. 257, 261, 264, 265, 268, 271, 302).

recycled, but about 70 percent (94 million tons annually, more than twice the amount of hazardous waste now generated in the U.S.), is dumped into landfills and surface impoundments. On December 22, 2008, one such facility operated by TVA burst open, releasing *one billion gallons* of inky coal ash sludge across 300 acres of Kingston, Tennessee.[29]

Of 629 impoundments nationwide, one-third were not designed by a professional engineer, and 96 are at least 40 feet tall and at least 25 years old. EPA has identified 50 "high-hazard" surface impounds likely to kill people if they fail. The Pennsylvania Department of Environmental Protection predicts that the failure of the Little Blue Run ash basin could kill 50,000 people. Beyond the catastrophic implications of a sudden spill, such sites, which are typically unlined, cause irreversible contamination of groundwater by such toxic metals as arsenic, cadmium, chromium, lead, mercury, and selenium. About 140 cases of such contamination have already been documented.[30]

I have attached to this testimony a chart showing the coal ash disposal sites in the districts of members of the subcommittee. I urge the subcommittee to consider the hazards posed by these sites before you vote on whether to adopt yet another weapon to eliminate such protective regulation.

The Unknowable

The core mission of the legislation before the subcommittee is to determine the influence of selected environmental regulations on the costs of energy in 2020 and 2030. These calculations must be completed no later than August 1, 2012, a date preceding by just a few weeks the national presidential election. In this instance, haste most assuredly will mean waste, except in the sense that the very large estimates that the bill's sponsors hope will be plucked from the ether will be used to further cripple EPA's efforts to implement the Clean Air Act.

Indeed, one irony that underlies this entire exercise is the argument often made by climate change skeptics to the effect that scientific projections of what might happen to climate over the next ten, twenty, or thirty years amount to sheer conjecture and do not afford a reliable basis for action. Yet these same skeptics would undoubtedly endorse this effort to demonstrate that if we act to control carbon emissions, we won't be able to afford the energy we need to stay warm, cool off, or even read a book. Only in this context, we have no ice cores, climate history, or other scientific evidence to rely upon, and instead must project the future course of history around the globe, teasing out with false precision whether saving Washington, New York, Chicago, or Los Angeles from dangerous smog that requires us to stay inside all day is truly worth an unknowable increment of increase on utility bills we will receive two decades hence.

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[29] Stephanie Smith, *Months After Ash Spill, Tennessee Town Still Choking*, CNN, July 13, 2009, http://articles.cnn.com/2009-07-13/health/coal.ash.illnesses_1_coal-ash-drinking-water-coal-power-plant?_s=PM:HEALTH; *Toxic Tsunami*, NEWSWEEK, July 18, 2009, http://www.newsweek.com/2009/07/17/toxic-tsunami.html.

[30] For further information on the proposed rule, and the hazards posed by the sites, see CPR Comments filed on November 19, 2010 and available at http://www.progressivereform.org/articles/Coal_Ash_Comments_Steinzor_111910.pdf.

Imagine for a moment that you could muster a meeting of the most sophisticated and knowledgeable experts on global oil prices. Throw in climate scientists, military experts, geologists, and the leaders of the ten countries with the largest deposits of oil, natural gas, and coal in the world. Ask the assembled group to tell you what the wholesale costs of these fuels will be in six months, and you will get lots of discussion that could take hours, if not days, and might even involve a range of estimates orders of magnitude apart depending on the perspective of the estimator. Now ask what the wholesale costs of these fuels will be in 2030. You would get laughter, shrugs, and protestations of disbelief that you are serious.

Over the last several weeks, we have seen popular uprisings course across the Middle East, sending gas prices through the roof. No one knows how these deeply rooted social cataclysms will play out, and they are likely to play a far more significant role in determining energy prices 10 or 20 years hence than projected costs of an EPA regulation that has not even been finalized yet. Unless sponsors of the legislation intend for its committee to simply pull the likely price of gas, oil, and coal in 2030 out of thin air, such projections are impossible to calculate in any reliable manner. Or consider the potential role of nuclear energy in America's future, a goal supported both by the President and many members of this committee. Nuclear energy will be far less regulated by the Clean Air Act than its fossil fuel counterparts. But who could have anticipated that a tsunami across the ocean in Japan would threaten its immediate future in the U.S.?

To the extent that the real answer sought by the legislation is how much the environmental rules under the Clean Air Act are likely to cost, as my earlier summary of benefits for four of the rules targeted by the legislation indicates, we have only to consult the elaborate regulatory impact assessments prepared by EPA under the stern oversight of OMB. But without the denominator of this fraction—how much energy will cost in 2020 or 2030, even those elaborate projections would not do the job this legislation demands.

Lastly, the legislation makes the job of knowing the unknowable even more ridiculously impossible by including rules that have not yet been promulgated in final form. These include most of the Clean Air Act rules explained above, which at least have been proposed by publication in the *Federal Register*. But it also includes potential rules that are at very early stages of development, including actions to improve visibility in certain national parks and wilderness areas (Clean Air Act Sections 169A and 169B) and rules to establish or modify a NAAQS.

Great Grandmother of All Unfunded Mandates

The discussion draft of the TRAIN Act contains a provision requiring the evaluation of how "covered actions" will affect energy costs and the reliability of the grid in 2020 and 2030. Covered actions are defined as "any" action occurring after January 1, 2009 and involving restrictions imposed by federal, state, or local governments on greenhouse gases using their Clean Air Act authority. In yet another striking paradox, the bill's drafters ignore how burdensome this requirement will be for countless thousands of public and private sector parties, even though their disgust with the burdens of regulatory requirements is ostensibly what drives

their support for the legislation. One must conclude that in the view of the drafters of this legislation, some burdens are OK to impose, so long as they don't help fight climate change or otherwise protect the environment. The mandate that some group of government accountants and economists quantify the implications of those potential requirements for projects in the planning stage for 2030 is nothing less than the great grandmother of all unfunded mandates.

To do a responsible job, federal numbers crunchers would be compelled to send information requests to every federal, state, and local government office--as well as any private sector company--that might be in a position to control the development or operation of a greenhouse gas-generating facility 20 years in the future. The reams of data that would be generated by such requests, not to mention the government resources that would be consumed in the analysis of such data, are quite literally mind-boggling.

In December 2010, EPA announced plans to issue an New Source Performance Standard (NSPS) limiting GHG emissions from fossil fueled power plants by May of 2012 and an NSPS limiting GHG emissions from petroleum refineries by November of 2012, as part of a settlement agreement with several environmental groups and state and local governments.[31] The agency has not yet issued any proposed rules, so the precise details of the NSPSs are not clear. The Clean Air Act requires EPA to set NSPSs based on the best demonstrated technology for controlling emissions, and to review and revise existing NSPSs to account for advances in emissions control technology. EPA has provided no information about its assessment of the potential emissions control technology, or whether it will consider controversial control technologies like carbon capture and sequestration. Crunching numbers in the face of such uncertainty will be a waste not only of government but of private sector resources.

Secret, Not to Mention Biased, Government

The public's confidence in and respect for our government is directly influenced by the transparency and sunshine provisions that good government laws like the Federal Advisory Committee Act (FACA) provide. Congress passed FACA because the federal government routinely consults a wide variety of scientists, engineers, business people, and citizens about public policy. The statute requires these consultations to be open, accountable, and balanced, including stakeholders with a full range of views on the issues. These requirements apply to any advisory group that is established or utilized by federal agencies and that has at least one member who is not a federal employee. Agencies must give advanced notice of meetings, keep minutes, permit interested persons to attend, and make available to the public any records or documents received by the group. Most importantly, FACA prohibits the stacking of advisory panels with one point of view. Agencies must ensure that each committee is fairly balanced in its membership in terms of the points of view represented and the functions to be performed.

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[31] Press Release, Envtl. Protection Agency, EPA to Set Modest Pace for Greenhouse Gas Standards (Dec. 23, 2011), http://yosemite.epa.gov/opa/admpress.nsf/6424ac1caa800aab85257359003f5337/d2f038e9daed78de8525780200568bec!OpenDocument.

Incredibly, despite its title, the Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011 would exempt the deliberations of the special "Committee for the Cumulative Analysis of Regulations that Impact Energy and Manufacturing in the United States" from FACA, and from any obligation to conduct its affairs in public or make the basis for its conclusions transparent. I appreciate that whoever named the bill needed a "T" to round out the acronym, but "transparency" is the last thing this bill can claim. Let me suggest that you add the phrase, "So-called" up front – the So-called Transparency in Regulatory Analysis of Impacts on the Nation Act. That would make both the name, and the acronym, STRAIN, much more accurate.

As disturbing, the legislation stacks the committee with federal officials—and a single private sector representative (a representative from the North American Electric Reliability Corporation)—who can be expected to share a clear bias against EPA regulations that the electric power and energy production industries might deem inconvenient. In fact, EPA itself is the only member of the committee that might speak up in defense of those rules, and it is hard to imagine why its sole representative would make the effort when she is so badly outnumbered and the meeting is occurring behind closed doors.

Conclusion

Mr. Chairman, and members of the subcommittee, the discussion draft of the TRAIN Act is a collection of bad ideas that cannot be executed in service of a dangerous and misguided objective. These requirements will waste time and money and could cost lives. If Congress is truly interested in making government more effective, it should drop this politically motivated piece of legislation and let EPA get back to work.

Witness Background

I am a law professor at the University of Maryland School of Law and the President of the Center for Progressive Reform (CPR) (http://www.progressivereform.org/). Founded in 2002, CPR is a 501(c)(3) nonprofit research and educational organization comprising a network of sixty scholars across the nation who are dedicated to protecting health, safety, and the environment through analysis and commentary. I joined academia mid-career, after working for the Federal Trade Commission for seven years and this committee for five years, and serving as outside counsel for a wide variety of small and mid-sized businesses for seven years. My work on environmental regulation includes four books, and over twenty-seven articles (as author or co-author). My most recent book, published by the University of Chicago Press, is *The People's Agents and the Battle to Protect the American Public: Special Interests, Government, and Threats to Health, Safety, and the Environment*, which I co-authored with Professor Sidney Shapiro of Wake Forest University's School of Law, analyzes the state of the regulatory system that protects public health, worker and consumer safety, and natural resources, concluding that these agencies are under-funded, lack adequate legal authority, and are undermined by political pressure motivated by special interests. I have served as consultant to EPA and have testified previously before Congress on regulatory subjects on numerous occasions.

Attachments:

- U.S. Gov't Accountability Office, *Clean Air Act: Mercury Control Technologies at Coal-Fired Power Plants Have Achieved Substantial Emissions Reductions* (GAO-10-47, Oct. 2009), *available at* http://www.gao.gov/new.items/d1047.pdf
- James E. Staudt, Ph.D, Andover Technology Partners, M.J. Bradley & Assocs., *Control Technologies to Reduce Conventional and Hazardous Air Pollutants from Coal-Fired Power Plants* (Mar. 31, 2011) (prepared for NESCAUM)
- Chart of Coal Ash Sites in Subcommittee Members' Districts

Mr. WHITFIELD. Thank you.
Mr. Segal, you are recognized for 5 minutes.

STATEMENT OF SCOTT SEGAL

Mr. SEGAL. Thank you, Mr. Chairman, members of the subcommittee. I am Scott Segal, and I am Director of the Electric Reliability Coordinating Council. I am also a partner at the law firm of Bracewell & Giuliani. It is my pleasure to be with you. I believe it is still this afternoon.

The power sector on whose behalf I am here today faces a wave of overlapping regulations. Even EPA admits that the Utility MACT, for one example, costs at least $10 billion annually, making it one of the most expensive rules in the history of the agency. Credible analyses have found cost estimates literally an order of magnitude higher but of interest to this subcommittee, while Utility MACT is quite serious, is that EPA also has or will promulgate a broad series of new rules in the immediate future with compliance deadlines on or before 2015. These rules includes greenhouse gas limitations, ash and other residual limitations, National Ambient Air Quality Standards for SO_2, NO_X, SO_X, ozone, particulate matter, a new transport rule, cooling water intake rule under 316(b), and discharge-limiting effluent standards under the Clean Water Act. Most Administrations feel like it is a good day at the job when they seek to change one National Ambient Air Quality Standard or maybe two over the course of a 4- or 8-year Administration, and that is regardless of whether we are talking Democratic or Republican Administrations. This Administration thinks it is a good day at the job to do five simultaneously. So it is very important that we take a look at overlapping impacts.

A recent ICF International analysis of pending and promulgated EPA regulations for the power sector, which I have asked to have placed in the record, shows that when a complete environmental future is analyzed, over 150 gigawatts of coal, half of the U.S. fleet, are at risk of being unavailable in 2015 for needed energy and required reliability due to insufficient time to install controls or replace generation. The ICF data when subjected to further economic analysis and controlled for appropriate sensitivities yields substantial net impacts on job creation in the United States. U.S. employment income is estimated to drop by an amount equivalent to the earnings of 2 million to 2.5 million full-time workers. This estimate includes an estimated increase in offsetting compliance-related employment equivalent to about 200,000 to a million full-time jobs in the early years of implementation. Without the offsets, the estimated reduction in worker income would be as high as 3.5 million jobs from the overlapping regulations.

As further frame of reference for what these overlapping regulations place at risk, we looked at Penn State's estimate of the total economic footprint of coal-fueled electric generation by 2015, they found that would be about $1 trillion, $362 billion in annual household incomes, and about 6.8 million jobs.

The impact of increased costs on retail and businesses is particularly troubling. Again, referencing the ICF data, particularly in certain regions, retail electricity price is estimated to increase by 20 to 25 percent. The average U.S. household is estimated to lose buy-

ing power of up to $500 per year. Consumer energy cost impacts are likely to be regressive with one-quarter of Americans already reporting that they had trouble paying for power, and for minority communities and for the elderly, the situation is even worse.

Certain sectors of the economy have become increasingly sensitive even to minor changes in the cost of electricity. You heard from the university a moment ago but the health care sector also finds that provisions of almost services are related to energy costs with hospitals using twice as much electricity per square foot than comparable office space, and this is not a highly hypothetical EPA air model. This is the bills that our health care sector actually pays.

Some have claimed that the suite of power sector regulations will stimulate new investment in technology of various descriptions, so-called green jobs. However, the data cited above demonstrates these are temporary job gains and still create a deficit of up to 2.5 million jobs. But in any event, it would be foolish in the extreme to believe that heavy regulatory burdens have ever been truly conductive to business confidence, investment or job creation. Recent experience in Europe demonstrates that for every four green jobs, nine higher-paying industrial jobs are lost.

By 2015, the coal-fired power plants in the United States will have invested as much as $125 billion in advanced emission control technologies and success to date has been clear. The U.S. electric power sector has reduced its emissions of NO_X, SO_X and a 40 percent reduction in mercury. However, as in 1998, the agency still can find no direct additional or incremental health benefits associated with reduction of non-mercury HAPs, which is the major cost driver within the Utility MACT proposal.

What can be done? President Obama himself in his January Executive Order called upon agencies to take into account the costs of cumulative regulations, which is precisely what the TRAIN Act does. It will be an excellent tool to prevent EPA from hastily adopting guidelines and regulations without careful consideration of their actual benefits and economic impacts. If it is true that these rules are such a great bargain, then nobody on this panel should have anything to fear from looking at their cumulative economic impact. To the extent people oppose looking at cumulative economic impact, I would suspect they believe the number will be quite high. Thank you very much.

[The prepared statement of Mr. Segal follows:]

Summary of the Statement of Scott H. Segal
The American Energy Initiative: Transparency in Regulatory Analysis
April 7, 2011

- EPA has or will promulgate numerous new rules in 2010 - 2012 with compliance deadlines on, before or near 2015. In 2015, due to the timetables established by EPA, the industry will face perhaps its costliest and most pressing challenge in Utility MACT. See chart.
- EPA is proposing controls which are extraordinarily costly with profound impacts on electricity supply and price, and job creation, and is doing this with no new data that asserts any specific benefits to regulating non-mercury HAPs.
- EPA's cost estimates do not include indirect costs nor does the Agency attempt to estimate the total cost associated with overlapping rules due to be adopted at or around the same time.
- EPA's upcoming regulations will impact roughly 400,000 MWs of oil and coal-fired generation, which is about 40 percent of the current available capacity in the U.S., and makes up nearly 50 percent of the U.S. total electricity generation.
- EPA's regulations will force plants to retrofit or into retirement, creating the need to spend about $300 billion in the next five years. Adaptation to the all the proposed rules, with Utility MACT being the most immediate threat, constitutes an extraordinary threat to the power sector – particularly the half of U.S. electricity derived from coal-fired generation.
- US employment income is estimated to drop by an amount equivalent to the earnings of about 2-2.5 million full-time workers. This estimate includes an estimated increase in offsetting compliance-related employment income equivalent to about 0.2-1 million full-time workers limited to the early years of implementation.
- Without these regulations, by 2015, the power sector would contribute $1.05 trillion (2005 $) in gross economic output; $362 billion in annual household incomes, and 6.8 million jobs.
- Retail electricity price is estimated to increase by 20 to 25% to cover the costs of complying with the new environmental requirements and the average US household is estimated to lose buying power of $400 to $500 per year due to these increases, with adverse impacts on business, minority and elderly communities, and the health care sector.
- By 2015, coal-fueled power plants in the U.S. will have invested as much $125 billion in advanced emission control technologies, reducing air emissions substantially under existing programs, despite the demand for electricity having tripled the industry's coal use between 1970 and 2005.
- Industry is committed to working with EPA on sensible mercury regulations in order to achieve those benefits properly indentified.
- President Obama's Jan. 18th Executive Order stated that Agency's must "consider costs and how best to reduce burdens for American businesses and consumers."
- EPA has not honored the spirit of the President's position, so it is imperative for Congress to address the timeframe and content of overlapping rules for the power sector. It can begin with adopting the Transparency in Regulatory Analysis of Impacts on the Nation, or TRAIN, Act. The Agency must be required to take into account cumulative economic impact if it hopes to understand the real impact of its rules on American businesses and consumers.

Statement of Scott H. Segal
Director, Electric Reliability Coordinating Council
The American Energy Initiative: Transparency in Regulatory Analysis
Hearing Before the Committee on Energy and Commerce
Subcommittee on Energy and Power
U.S. House of Representatives
April 7, 2011

Mr. Chairman and Members of the Subcommittee. Thank you for giving me the opportunity to testify before you today on behalf of the Electric Reliability Coordinating Council. ERCC is a broad-based coalition of power companies who have come together to work to ensure that consumers across the United States continue to have access to reliable and affordable power.

We support generating and distributing electricity in an environmentally responsible manner. But what we do not support, however, are broad, overreaching rules which, in some cases usurp Congressional authority and make no attempt to even conduct a real analysis of their economic impact on, not only the power companies, but the hundreds of millions of Americans who rely on us everyday.

EPA is back at this again, now having signed a proposal to advance a new maximum achievable control technology (MACT) standard for the electric utility industry, known as the Utility MACT. Back in 1998, the EPA made a finding regarding the need to regulate mercury emissions from power plants. At the time, EPA made clear that there were no incremental benefits associated with addressing any other hazardous air pollutants (HAPs) from the power sector other than mercury. Specifically, no health benefits were found from addressing non-mercury HAPs such as acid gases. Such controls are extraordinarily costly with profound impacts on electricity supply and price, and job creation. In the intervening years, no additional data has been added to the Agency record that asserts any specific benefits to regulating for non-mercury HAPs. And yet, in the proposal issuing from EPA, the Agency seeks to regulate these non-mercury HAPs at great expense for no incremental benefit.

Utility MACT Is Part of A Wave of Overlapping Regulations

EPA admits the pending proposal will cost at least $10 billion, making it one of the most expensive rules in the history of the Agency. And this cost does not include indirect costs nor does the Agency attempt to estimate the total cost associated with overlapping rules due to be adopted at or around the same time. Even focusing primarily on Utility MACT itself, other credible analyses have found direct cost estimates literally an order of magnitude higher than EPA, at or near $100 billion. These other analyses make more realistic assumptions about technologies likely to be required to meet the terms of proposed rule.

EPA has or will promulgate numerous new rules in 2010 - 2012 with compliance deadlines on, before or near 2015. In 2015, due to the timetables established by EPA, the industry will face perhaps its costliest and most pressing challenge in Utility MACT. Other rules include regulations for:

O Greenhouse Gases (GHG) from new and modified sources;

O Ash and other residuals from the combustion of coal either under Subtitle C as a hazardous waste or Subtitle D as a solid waste of Resource Conservation and Recovery Act (RCRA);

O National Ambient Air Quality Standards (NAAQS) for SO2, NO2, Ozone, and PM, including a utility-specific SO2-and-NOx-emissions-limiting transport rule; and

O Cooling water intake structure requirements under section 316(b) and new discharge limiting effluent standards under the Clean Water Act.

Taken together, these regulations will impact roughly 400,000 MWs of oil and coal-fired generation, which is about 40 percent of the current available capacity in the U.S., and makes up nearly 50 percent of the U.S. total electricity generation.

Further, a recent ICF International analysis of pending and promulgated EPA regulations prepared for the Edison Electric Institute shows that when a complete environmental future is analyzed, over 150 GWs of coal, half of the U.S. coal fleet, are at risk of being unavailable in 2015 for the needed energy and required reliability due to insufficient time to install controls or replacement generation. Nearly 80 GWs of coal are retired by 2015 and the remaining coal is

subject to an unachievable retrofit program. These retirements and retrofits create the need to spend about $300 billion in the next five years, over two thirds of which is for replacement generation. These circumstances lead to generation shortages and a rapid run-up in prices creating a reliability and affordability crisis.[1]

Total Jobs and Economic Recovery At Risk

Adaptation to the all the proposed rules, with Utility MACT being the most immediate threat, constitutes an extraordinary threat to the power sector – particularly the half of U.S. electricity derived from coal-fired generation. The industry is concerned about the ability to retrofit environmental controls or build replacement capacity in the three years to comply with the Utility MACT rule (and then other rules). Construction timeframes are also expected to increase due to the logistics of simultaneous installations, industry-wide competition for materials and craft labor, and increasing permitting requirements. The North American Electric Reliability Corporation (NERC) report notes that the "overlapping compliance schedules for the air and solid waste regulations, along with required compliance for rule 316(b) following shortly thereafter, may trigger a large influx of environmental construction projects at the same time as new replacement generating capacity is needed. Such a large construction increase could cause potential bottlenecks and delays in engineering, permitting and construction."[2]

The ICF data referenced above, when subjected to further economic analysis and controlled for appropriate sensitivities, yield substantial NET impacts on job creation and maintenance in the United States. US employment income is estimated to drop by an amount equivalent to the earnings of about 2-2.5 million full-time workers. This estimate includes an estimated increase in offsetting compliance-related employment income equivalent to about 0.2-1 million full-time workers limited to the early years of implementation. Without the offsets, the estimated reduction in worker income would be 2-3.5 million. Offset employment takes into account environmental retrofitting, new power plant construction and energy efficiency improvements.

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[1] EEI, *Potential Impacts of Environmental Regulation on the US Generation Fleet: Final Report*, January 2011.

[2] NERC, *2010 Special Reliability Scenario Assessment: Resource Adequacy Impacts of Potential U.S. Environmental Regulations*, October 2010.

As a further frame of reference for what the overlapping regulations place at risk, consider the contribution likely to be made by the affected part of the power sector if allowed to continue and to innovate. Adam Rose and Dan Wei of Penn State University set out to estimate the total economic footprint of coal-fueled electric generation by 2015. They found that coal-fueled generation will contribute:

- $1.05 trillion (2005 $) in gross economic output;
- $362 billion in annual household incomes, and
- 6.8 million jobs.[3]

Impacts Related to the Cost of Electricity

Aside from direct economic impacts to industry and manufacturers, the impact of increased costs on retail and business consumers is particularly troubling. Again, referencing the ICF data and subjecting it to appropriate further analyses yield the following results:

- Particularly in certain regions, retail electricity price is estimated to increase by 20 to 25% to cover the costs of complying with the new environmental requirements. Costs include installing emission control equipment, constructing new generating units, shifting more generation away from less-expensive plants to more-expensive ones and retiring existing coal units.

- The average US household is estimated to lose buying power of $400 to $500 per year. This reflects higher prices for energy-intensive goods, fuel shifting, and reduced household income due to both reduced employment income and reduced investment income.

Consumer energy cost impacts are likely to be regressive. Bills paid by the consumers with significant coal resources "will rapidly become the most expensive. Electric bills make up the majority of low-income household expenditures today." In a recent study on Public Opinion on Poverty, it was reported that one-quarter of Americans report having problems paying for several

[3] Adam Z. Rose and Dan Wei, *The Economics of Coal Utilization and Displacement in the Continental United States, 2015* (July 2006).

basic necessities. In this study, currently 23% have difficulty in paying their utilities - that is, one out of four Americans."[4] Further, African-American and Hispanic families will pay almost twice the amount of after-tax income on energy compared to the average and when viewed as a percentage of total household income.[5] Likewise, elderly households use less per capita energy but still "spend a higher share of their income on energy-related expenditures."[6]

Certain sectors of the economy have become increasingly sensitive to minor changes in the cost of electricity. For example, the health care sector finds that almost all provisions of services are related to energy costs, with hospitals using twice as much electricity per square foot than comparable office space. One recent study found that "electricity used exclusively for medical records is rapidly increasing, by 400-800% in the past four years."[7]

Offsetting Economic Benefits? Not Likely

Some have claimed that the suite of power-sector regulations will stimulate new investment in technology of various descriptions, creating so-called "green jobs." However, the data cited above controls for near-term, temporary job gains, and still finds a jobs deficit of some 2 to 2.5 million jobs due to the overlapping impact of power-sector rules. In any event, heavy regulatory burdens have never been truly conducive to business confidence, investment and job creation. Data has shown that salaries paid for jobs classifiable as "green" are far below the national average. European experience demonstrated that for every four green jobs created, nine higher paying industrial jobs are lost. At the very least, flimsy or overly optimistic economic benefit

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[4] Statement of Daryl Bassett, Director, Empower Consumers, Panel on Allocation Policies to Assist and Benefit Consumers, Subcomm. on Energy and the Environment, House Comm. on Energy and Commerce, April 23, 2009.

[5] Rising energy costs disproportionately impacting minority households, Louisiana Weekly, Aug. 29, 2008, available at http://www.louisianaweekly.com/news.php?viewStory=271.

[6] Janemarie Mulvey, Impact of rising energy costs on older Americans, CRS Report for Congress No. RS22826 (Mar. 4, 2008), at http://assets.opencrs.com/rpts/RS22826_20080304.pdf.

[7] Dan Bednarz, Rising energy costs and the future of hospital work, Energy Bulletin, Apr. 29, 2008, available at http://www.energybulletin.net/node/43514.

analysis can not be the basis for risking millions of industrial jobs and billions of dollars in GDP.[8]

David Montgomery of Charles River Associates, a noted economist with 40 years of work in energy and environmental policy, recently testified that:

The serious debate in environmental policy is about how the costs of new regulations compare to their benefits, and how to design the regulations to minimize cost, uncertainty and disruption. Claims that regulations that raise the cost of doing business will create new jobs are, at best, a sideshow. Such claims only distract attention from the difficult tradeoffs that must be made between costs and benefits. 'Green jobs' is not a subject that leading economists have usually taken seriously enough to criticize in professional journals.[9]

As most economists agree, a policy of "regulating ourselves to prosperity" seems suspect at best.

Alleged Health Benefits: A Lesson in Double Accounting

The generation of sufficient, affordable and reliable electric power is a complex business. Policy makers in the past have established a balanced approach that allows both health benefits and energy policy goals to be realized. Contrary to the statements of some in the environmental community, this balanced approach has resulted in substantial reductions in critical air emissions.

By 2015, coal-fueled power plants in the U.S. will have invested as much $125 billion in advanced emission control technologies. Success to date is clear. The U.S. electric power sector has reduced air emissions substantially under existing programs. The industry has cut sulfur dioxide (SO2) and nitrogen oxides (NOX) emissions by 57 percent emissions between 1980 and 2008. The power sector also has cut emissions of mercury by about 40 percent through efforts to reduce other pollutants. Electricity use increased 85 percent during this time period. While demand for electricity has tripled the industry's coal use between 1970 and 2005, emissions have

[8] Editorial, "How Green Is Your Lost Job?," *Investor's Business Daily*, March 1, 2011(citing green jobs data from Denmark, Germany, Scotland and Spain).

[9] Senate Committee on Environment and Public Works, Subcommittee on Green Jobs and the New Economy hearing entitled, "Green Jobs and Trade," February 15, 2011.

declined significantly, and continue to decline thanks to emissions-reducing programs enacted by electric companies.[10]

As was noted above, EPA found benefits attributable only to mercury reductions and has not supplemented the record specifically regarding non-mercury HAPs. Industry, for its part, is committed to working with EPA on sensible mercury regulations in order to achieve those benefits properly indentified. So why then does EPA cite benefits to reducing non-mercury HAPs that form the basis for overblown claims by environmental organizations? The answer may surprise you. Rather than identifying any incremental benefit associated with very costly actual reductions in non-mercury HAPs, the Agency uses reductions in particulate matter, or PM, as a surrogate or a stand-in for real data that might be relevant. The trouble with this approach is that the control of PM has already been addressed by Congress and EPA in specific programs designed to focus on PM directly – like the national ambient air quality standard for PM.[11]

As in 1998, the Agency still can find no direct or incremental health benefit associated with reduction of non-mercury HAPs. The only real "attribute" of such controls is to increase the cost of power generation while decreasing its reliability. The "benefits" that are alleged – from the control of PM – are already the product of existing, specifically targeted parts of the Clean Air Act unrelated to the MACT program. This is the same kind of double accounting that, frankly, corporations are forbidden to do in their own affairs.

What Can Be Done? Focus on Assessing and Addressing Overlapping Economic Impacts

President Obama himself embraced the need to closely scrutinize the cost and economic impact of new agency regulations. His January 18th Executive Order[12] laid out the new review process for regulations, stated that an agency should "tailor its regulations to impose the least burden on

[10] EEI, Cleaner Air: Great Progress Has Been Made, Even As Demand for Electricity Increases, 2011, available at http://www.eei.org/ourissues/ (citing EPA Clean Air Trends data).

[11] The history of federal PM regulation from 1971, including revisions in 1987, 1997, and 2006 are discussed at EPA, PM Standards, last updated October 28, 2010, available at http://www.epa.gov/pm/standards.html.

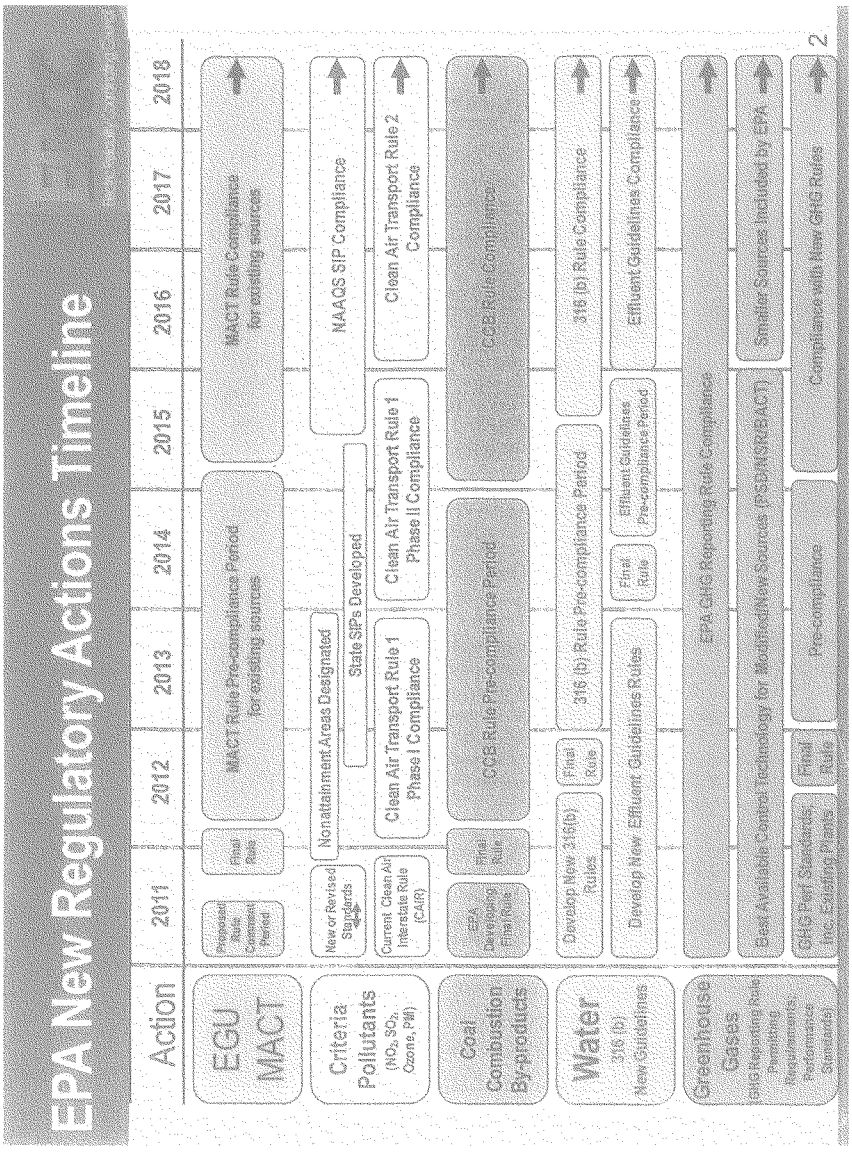
[12] E.O. 13653, 76 Fed. Reg. 3821, published Jan. 21, 2011

society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations." The accompanying memo issued with the Executive Order sought to clarify the order, by highlighting a basic tenet of the Order; Agency's must "consider costs and how best to reduce burdens for American businesses and consumers." Because EPA does not appear to be doing so, we believe Congress should honor the spirit of the President's position and address the timeframe and content of overlapping rules for the power sector. It can begin with adopting the Transparency in Regulatory Analysis of Impacts on the Nation, or TRAIN, Act.

Having reviewed the TRAIN Act, we regard it as an excellent tool to prevent EPA from hastily adopting guidelines and regulations without careful consideration of their actual benefits and economic impacts. By bringing together an interagency committee to analyze the cumulative impacts of certain significant rules issued by the Environmental Protection Agency, a more macro view of the effects of these regulations can be achieved, and EPA will hopefully better understand how these policies are impacting America's global economic competitiveness, electricity and fuel prices, employment, and reliability of electricity supply.

Taking into account the multiple and overlapping rules facing the power sector, the spirit of the President's Executive Order and the requirements of the TRAIN Act should force EPA to choose a formulation of the proposed Utility MACT and related rules that imposes the "least burden" on society. Where EPA has the capacity for flexibility – such as in the control of non-mercury HAPs, sub-categorization, determination of the MACT floor, and other areas, EPA should do so, particularly in light of the high costs and weak incremental benefit analysis. The Agency has a long distance to travel from the options suggested by the current proposal.

I thank the committee for holding this hearing today and inviting me to testify, and am now happy to answer any questions you may have.


EPA New Regulatory Actions Timeline
Action
2011
2012
2013
2014
2015
2016
2017
2018
EGU MACT
Proposed Rule, Comment Period
Final Rule
MACT Rule Pre-compliance Period for existing sources
MACT Rule Compliance for existing sources
Criteria Pollutants (NO_2, SO_2, Ozone, PM)
New or Revised Standards
Nonattainment Areas Designated
State SIPs Developed
NAAQS SIP Compliance
Current Clean Air Interstate Rule (CAIR)
Clean Air Transport Rule 1 Phase I Compliance
Clean Air Transport Rule 1 Phase II Compliance
Clean Air Transport Rule 2 Compliance
Coal Combustion By-products
EPA Developing Final Rule
Final Rule
CCB Rule Pre-compliance Period
CCB Rule Compliance
Water 316 (b) New Guidelines
Develop New 316(b) Rules
Final Rule
316 (b) Rule Pre-compliance Period
316 (b) Rule Compliance
Develop New Effluent Guidelines Rules
Final Rule
Effluent Guidelines Pre-compliance Period
Effluent Guidelines Compliance
Greenhouse Gases
EPA GHG Reporting Rule Compliance
GHG Reporting Rule Permitting Requirements
Best Available Control Technology for Modified/New Sources (PSD/NSR/BACT)
Smaller Sources Included by EPA
GHG Perf Standards for Inc. Existing Plants
Final Rule
Pre-compliance
Compliance with New GHG Rules
2

Mr. WHITFIELD. Thank you, Mr. Segal, and I thank all of you for your opening statements.

First question I would just ask all of you across the board, you can give me a yes or no, recognizing that EPA does a very thorough job in its analysis looking at health care benefits, I would ask each one of you, do you think it would beneficial to have an analysis made by some independent agency of the cumulative economic impact of regulations coming out of EPA that are identified in this legislation. Mr. Cauley?

Mr. CAULEY. Chairman Whitfield, I do believe the electric power industry would benefit from comprehensive review. One of the challenges of maintaining a long-term reliable bulk power supply is having some amount of certainty to commit resources. It takes sometimes 4, 6, 8 years to site and build generation——

Mr. WHITFIELD. But you believe it would be a benefit?

Mr. CAULEY. Yes.

Mr. WHITFIELD. OK. Mr. Schaeffer?

Mr. SCHAEFFER. I can't object to the concept. Intuitively it makes sense. The question is whether it will delay issue of rules that have been overdue for so many years, and whether the cumulative benefits will also be considered.

Mr. WHITFIELD. Thank you. Mr. Bailey?

Mr. BAILEY. Yes, I do, sir.

Mr. WHITFIELD. Mr. Hess?

Mr. HESS. Yes, sir, I do.

Mr. WHITFIELD. Dr. Ridgway?

Ms. RIDGWAY. Yes, I do.

Mr. WHITFIELD. Ms. Steinzor?

Ms. STEINZOR. No, sir.

Mr. WHITFIELD. Mr. Segal?

Mr. SEGAL. Yes, and I just wanted to say one thing about whether or not it can be done and whether it would be too hard to do. I have talked to former EPA air administrators and former general counsels of the agency who assure me this type of work is available to them, could be done and we could proceed and do this work, but we don't do it.

Mr. WHITFIELD. Thank you. Now, Mr. Bailey, we have heard some comments today which is understandable that any time industry hears about a regulation they are going to be impacted by, they immediately start complaining about the cost of this new regulation and the jobs that will be lost, and paint a very sad scenario. You are out there every day dealing with this issue. It is your responsibility to run this electricity company producing electricity. With the unprecedented activity of this EPA, one regulation right after the other, why is it so difficult for you as a CEO responsible to comply with these kinds of regulations? Why is it so difficult?

Mr. BAILEY. Well, clearly we want to keep the rates low for all our customers. We are non-profit, so we are not trying to make profits on increasing rates. But we are rate-regulated in Kentucky, cooperatives are. We are regulated by the Public Service Commission and rates are not adjusted until after you make the investment, and if you make investments based on what you know at one point in time and it is later found as different rules have come out that that was an imprudent decision, it is impossible to recover all

that investment, if any of it. So clearly that would be money that was not well spent from that standpoint.

Mr. WHITFIELD. So one of your big concerns is you invest money and then you realize that the regulation has been changed again or it is changed again and then you invest again. Is that what you are saying?

Mr. BAILEY. Yes. It would be difficult to go to a board of directors and say we need to invest hundreds of millions of dollars and say we are quite sure whether this will solve the requirement or not.

Mr. WHITFIELD. And do you view the Air Transport Rule more of an obstacle for you than, say, the Utility MACT, or how do you look at those two?

Mr. BAILEY. Well, the transport rule as it appears now, and of course the rules are finally promulgated but it appears that we will be required to comply beginning in 2012 and 2014. The time just does not permit us to make the capital additions. So basically we will have to reduce generation.

Mr. WHITFIELD. And how serious is your concern that your biggest customer, those aluminum smelters—they are your biggest customer?

Mr. BAILEY. Yes, sir, they are.

Mr. WHITFIELD. How concerned are you that because of the increase in price of electricity that they may actually close up and leave?

Mr. BAILEY. I am very concerned. As you look at statistics over the years, I think there were 34 smelters in this country in 1978, now we are down to about 9, and our customers are telling us the time they are worried about rate increases. So you look at the magnitudes of 40 percent, you look at the prices that smelters pay, ours are in the top 20 percent right now.

Mr. WHITFIELD. One of the things that concerns me is that I think this Administration is overselling green energy, and I say that because green energy may be available in the long-out future but for right now when we expect our energy demands to increase by 40 percent, Mr. Segal said that one-half of coal fleet availability may not be there, how in the world can we meet our electricity demands? Windmills, solar panels, hydropower are simply not going to be able to do it.

My time is expired. Mr. Rush, you are recognized for 5 minutes.

Mr. RUSH. Thank you, Mr. Chairman.

The whole premise behind today's hearing on the TRAIN Act is that there is a train wreck of EPA regulations coming down the pike that will cripple the nuclear industry. And Ms. Steinzor, you kind of characterized this as being the great grandmother for all federally unfunded mandates. I thought that was pretty creative. And then I heard Mr. Segal say that for every one green job created, that nine current industrial jobs would be lost. I think I heard him say that. What do you think about his conclusion that for every one green job that is created, there will be nine current industrial jobs eliminated?

Ms. STEINZOR. I have no knowledge of what study he is talking about, and perhaps he could enlighten us. I will say that we have done a very close examination of a study known as Crane and Crane, which is cited a lot by the Small Business Administration,

and claims that there will be about $3 trillion regulations will cost, and among other things, that study includes the time people spend filling out their tax returns. It is based on an opinion poll in countries that rated whether they were a favorable environment from a regulatory perspective. It was never intended to be used as a foundation for mathematical characterization like that.

So I would say that every time we have looked at a study that gives numbers with that kind of pinpointed precision when you look a little bit beneath the assumptions that go into those numbers, you find that they are dramatically overstated, and I would be happy to look at the study that Mr. Segal was referring to.

Mr. RUSH. Would there be any financial costs, in your opinion, associated with implementing this act and creating yet another committee to study these rules that EPA is already studying and mandated by law? And maybe you can answer this: what is the cost financially and is it paid for as mandated by the new Rules of the House?

Ms. STEINZOR. I actually think that it would not satisfy. There has been no analysis of what the unfunded mandate would be on State governments but also private sector, everybody sitting at this table. One of the things the legislation does is to require this committee to analyze what a potential permitting action, how that would affect electricity prices, and to analyze that, you need to know everybody who is thinking of a project and might get a permit out to 2030, and the only way to do that is to ask them. So I would expect everyone at this table to be receiving, except for me of course and Mr. Schaeffer, to be receiving an information request for this committee, and if they don't, then the number is going to be a stab in the dark, which is really the problem with it, very expensive and yet won't be accurate.

Mr. RUSH. Mr. Schaeffer, are there any costs to business associated with delaying industry-wide rules and regulations and pushing regulatory reform further down the road for some future date? Is there any cost to businesses that you could think of?

Mr. SCHAEFFER. Is that directed to me?

Mr. RUSH. Yes.

Mr. SCHAEFFER. My apologies.

Mr. RUSH. Why don't I ask you again. Mr. Schaeffer, are there any costs to business associated with delaying industry-wide rules and pushing regulatory reform further down the road for some future date?

Mr. SCHAEFFER. Congressman Rush, I think that generally is—I think the delay of game is a major tactic in Washington. If you can push the rules off to the future, you save money, and that is fair enough if that is what people want to do. I tried to make the point earlier in my testimony, these regulations had statutory deadlines, were supposed to have been met many years ago. They were not. They will now be met more or less around 2015 instead of a decade or more earlier, in some cases 20 to 30 years earlier. In all that time, the industry has been able to save money that they otherwise would have had to spend meeting the deadlines that Congress set out for these regulations.

Mr. RUSH. Yield back.

Mr. WHITFIELD. The gentleman from Oklahoma for 5 minutes.

Mr. SULLIVAN. Thank you, Mr. Chairman.

Mr. Segal, could you comment on the statements of Ms. Steinzor, please?

Mr. SEGAL. Sure. Well, with respect to green jobs, the study that I quoted actually deals with experience in Europe, specifically in Spain, which found that for every four so-called green jobs that were created, nine industrial jobs were lost. And I will tell you, it comes from a country that was very skeptical about that conclusion. In fact, Spain, Italy, a number of countries in Western Europe are very proactive when it comes to encouraging investment in green jobs. Imagine how disappointed they were to learn that the so-called green jobs tend to pay substantially less in salary, are more temporary in duration, i.e., operating a coal plant versus constructing a wind farm, and has a whole lot less as far as actual numbers of jobs are concerned. Since that study came out, it has been supplemented with data, not just from the Spain study but also from Denmark and from Scotland and from Germany, again, countries that really were dedicated to promotion of green jobs. So we have got a situation where this is somewhat illusory.

Bottom line for the train wreck, if you will, or the overlapping regulations in the power sector, there is only one study to date, and I include the Environmental Protection Agency, that has actually netted out offsetting near-term construction jobs from putting on a new whiz-bang at a power plant versus actual loss from being capacity offline. That is the study that this committee has heard today performed by ICF International released in January of 2011 using the same contractor and the same proprietary model that the Environmental Protection Agency uses but using more realistic assumptions about the actual technology that will be required to implement these rules, one study, and it shows a deficit of 2.5 million jobs if we have the simultaneity of adoption that is proposed and warmly welcome by the Environmental Protection Agency.

Mr. SULLIVAN. Thank you, sir.

Mr. Cauley, what could people expect to happen when the reliability of electricity supply is low?

Mr. CAULEY. In the worst case, Congressman Sullivan, when we have a shortage of supply we end up with rolling blackouts and those sorts of things. Usually the industry is planning ahead to make sure that there is adequate supply but things like extreme weather and conditions can create shortages.

Mr. SULLIVAN. In your opinion, is it possible to perform a robust forecast of electricity reliability without doing some kind of cumulative analysis of the potential impacts of regulations?

Mr. CAULEY. I think a cumulative analysis is essential, and that is why we as an independent organization have taken that responsibility on and produced our report last October and will continue doing assessments in the future.

Mr. SULLIVAN. Also, given the responsibility that has been given to the NERC to ensure the reliability of the bulk power system in North America, would NERC consider it sufficient to look at the impact of regulations one by one instead of in a cumulative analysis? If not, why not?

Mr. CAULEY. The challenge is that the real decisions for investing in new plants, new facilities is a long-term investment decision.

It requires siting. It requires significant investment resources and it is not a year-by-year, month-by-month decision process. So to make effective decisions that are good for customers, a comprehensive look is essential.

Mr. SULLIVAN. Also, of the major EPA rules NERC analyzed in its assessment, which regulations have the greatest potential reliability implications?

Mr. CAULEY. The greatest impact was the cooling water regulation, according to our report completed last October.

Mr. SULLIVAN. Thank you, sir. I appreciate it. I yield back. Oh, I have some more time? OK.

I would like to say that in region 6, the EPA, just to show you how these regulations cost people, cost states is, we did a state implementation plan, required to do that, to achieve a goal the EPA wanted us to achieve, and they came back and did a federal implementation plan, which cost hundreds of millions which just get passed onto the consumer. I just think that that does have an impact on our economy, does have an impact on jobs, and certainly none of that was done before—they didn't analyze anything before they did that, and I think that you are seeing this hurting the economy, hurting the jobs. You see these EPA rules. I heard there is more coming down the pike that are hundreds of millions of dollars each, and I think that having analysis of it is not something that is bad. Thank you.

Mr. WHITFIELD. Mr. Green, you are recognized for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman, for holding the hearing, and while I am sympathetic to the argument that we face the regulatory landscape we do because of several delays in rulemakings over the last couple of decades, that doesn't mean we can ignore the fact that companies are faced with complying with several rules all at the same time. As such, I do think it is appropriate to study the cumulative impact of multiple regulations on the competitiveness and sustainability of businesses and other regulated entities and the related impacts on jobs.

Concerning the discussion draft before us, though, I think there are some drafting issues that need to be addressed, and I also think we should look at or least acknowledge the public health effects of such rules in order to be fair, and hopefully I can get to be a yes on the bill, Mr. Chairman, but I would like to look at the drafting. I am glad this is a draft and I would like to work with you on it, and I think I share that with our ranking member, Congressman Rush.

Now for my questions. Are any of you able to comment on how the EPA is complying with President Obama's July 18th Executive Order stating agencies must consider cost and how best to reduce the burdens of American business and consumers? Do we know what the status is? Scott?

Mr. SEGAL. Well, I will tell you this much. The agency has asked for folks to file comments, and so there is an open process there, which is good, and people will file comments on it. That said, the executive order was released in January and we have a raft of rulemaking proposals that come out, particularly in March, and it seems as though these rulemakings, that was a golden opportunity to comply with the executive order would have been to acknowledge

cumulative impact or at least, how about this, to acknowledge the Executive Order in these new proposals that came out and of course, none of them, they just barreled on down the path full steam ahead.

So I don't think they have taken it to heart, the spirit of the executive order, which is what makes the TRAIN Act so interesting because it actually gives teeth to the executive order, assuming it is drafted appropriately.

Mr. GREEN. Mr. Schaeffer, I understand you argue that the industry should not complain because these rules should have been implemented years ago. So how do you respond to the fact that these rules now are all coming down the pike at once? Take Mr. Bailey's statement, for example, that the expense of installing control equipment on coal-fired generator units to comply with two of the rules may be a wasted effort if it is later found that conversion to natural gas is the best solution to meet the later issued deadline. How do you respond? Of course, coming from Texas, I think everything ought to be natural gas, but how do you respond to it?

Mr. SCHAEFFER. Congressman Green, that is a good question. I am confused by what I have heard in the discussion because on the one hand, I hear it is all coming together, it is too much, and on the other hand, I hear, well, we kind of need it all to come together so we can plan and be rational about it, and in fact, we have heard the industry testify to that effect for years. They would like to see it all at once. So I am not sure if that is an answer.

I will quickly say that some companies have already done the work needed to comply with these rules and if they are put off, we are not going to have a level playing field. In my State of Maryland, we have big coal plants, coal supplies more than half the electricity, mercury down by nearly 90 percent, sulfur dioxide virtually eliminated at the Brandon Shores facility, baghouses put on, millions of hours of work created for people. Those plants are ready. They anticipated these rules. They didn't bank on being able to delay compliance. Then on the other hand, we have some plants that have done very little, and for those, yes, they are going to have some costs but I don't want to leave the impression that we have got all the coal plants in the same situation because they are in very different places.

Mr. GREEN. I am almost out of time. I have a question for Mr. Cauley, but Mr. Segal, thank you for testifying, and we worked together a lot of years on energy and I appreciate it. I would like to ask you, though, about timing and the implementation of the Utility MACT Rule. I have heard that 3 years is just not feasible for compliance, and Mr. Cauley, feel free to respond also. How much time would these facilities need to comply with this rule, assuming there is no delay in the rule or changes made to it?

Mr. SEGAL. There are two elements that we need to keep in mind. One is timing, and 3 years, you know, to begin the process in 2015 is not even 3 years when you consider the planning process. A minimum of 5 years is needed in order to really plan it out, and even that is pushing it, but there are also substantive issues because it is not just a timing question. It is a question of how you establish the MACT floor. It is a question of whether there is adequate, what is called subcategorization within the rule that will

make the difference between whether this rule is workable or not, even if given a significant amount of time. So there is a time issue and a substance issue.

Mr. GREEN. I know I am out of time, but Mr. Chairman, could Mr. Cauley respond? Is there anything different than from what Mr. Segal said?

Mr. CAULEY. I would just defer to Mr. Segal as representing the owners and operators.

Mr. GREEN. OK. Thank you, Mr. Chairman.

Mr. WHITFIELD. Mr. Shimkus, you are recognized for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman, and thank you all for coming. If they put up the Edison Electric analysis of the train wreck real quick, I said that in my opening statement. Does anyone disagree that these regs are coming down in this timeline? No. So everyone agrees that these eight regulations are coming down between 2008 and 2016. You disagree?

Mr. SCHAEFFER. I don't have it in front of me and I can't see it here.

Mr. SHIMKUS. All right. Well, I will give this to you and then you can confer, but I think the answer is, no one disagrees that this is the train wreck. This is what we are referring to. Ozone, SO_X, NO_X, transport, water, particulate matter, ash, mercury, carbon dioxide. Now, we tried to address carbon dioxide today on the floor to deny EPA the ability to regulate greenhouse gases. We are going to continue to do that. We will probably work on some of these other ones like the water, especially particulate matter. I mean, these are ludicrous. They are crazy as the carbon dioxide regulations, so I hope, Mr. Chairman, we move on some of these easier ones to address like we did on the floor today.

The question was asked, has the EPA complied with the Presidential Executive Order. Mr. Segal is the only one who responded. The order came out in January. Regulations came out in March. I would submit no. No one else responded to that question by Mr. Green. Yes, quickly.

Ms. STEINZOR. Can I just ask if you are concerned about the schedule, wouldn't it be more straightforward to try and amend the Clean Air Act?

Mr. SHIMKUS. Well, I think through the court rulings, the court rulings already said, which we disagree with, that the Clean Air Act was designed for criteria pollutants. We disagree with the court ruling that CO_2, which is a non-toxic emittant, is a criteria pollutant.

Let me move on. I don't have enough time to debate you. You are always welcome to come visit with me in the office.

Mr. Bailey, tell me about this big slush funds that you have developed in your co-op over the last 10 years or 30 years because you haven't complied with some futuristic view of rules that are coming down? Do you have one?

Mr. BAILEY. Well, as I said, we are nonprofit.

Mr. SHIMKUS. So you don't have a slush funds? You haven't built up all this capital money?

Mr. BAILEY. Well, actually our net book value right now is around $980 million.

Mr. SHIMKUS. So to comply with $1 million of capital development and equipment, what are you going to have to do?

Mr. BAILEY. Well, we are going to have to first get some clarity to know exactly what the requirements are, and then once you have that, you have to construct that.

Mr. SHIMKUS. And the problem with the train wreck is, there is no clarity.

Mr. BAILEY. That is right. I might point out, though, of that $980 net value, $360 million of it is for environmental equipment.

Mr. SHIMKUS. Thank you.

Dr. Ridgway, I wish I had more time to ask you more questions. I also have Purdue boilermaker, Big 10, all that good stuff, but Southern University at Carbondale has a power plant. So what are you all going to do to pay for the capital expense to meet the train wreck?

Ms. RIDGWAY. The current mode that we have to do is request fund from the States for capital improvements.

Mr. SHIMKUS. And that is readily available in this environment, right?

Ms. RIDGWAY. Not so much.

Mr. SHIMKUS. Tuition, tax increases, it is really going to affect the bottom line of universities that operate this.

Ms. RIDGWAY. Absolutely, and I think our campuses are expanding and these facilities are designed to supply heating and cooling and electricity to all the campus buildings.

Mr. SHIMKUS. Thank you. I am going to cut you off because I want to get to this.

Mr. Schaeffer, Ms. Claudia Rogers testified in the Small Businesses Administration yesterday on the House Committee on Oversight, and she says EPA now has the complete—it is right here—"EPA now has completed the regulatory process which has or will soon subject small businesses to the burden of Clean Air Act permitting, a burden that the tailoring rule has failed to address for some and is only delayed by a few years. Throughout the rulemaking process, our office has informed EPA that it should adequately consider the impacts of this program on small business." I would like to submit this for the record. You have testified that the Administration has exhaustively reviewed this, did you not?

Mr. SCHAEFFER. Yes, I did.

Mr. SHIMKUS. Isn't the Small Business Administration part of the Administration?

Mr. SCHAEFFER. You know——

Mr. SHIMKUS. My point is, I reject your premise.

Mr. SCHAEFFER. Would you like an answer?

Mr. SHIMKUS. Well, no, I am going to answer it because the Small Business Administration is part of the Administration. They testified yesterday this is disastrous, and I will end up with Ms. Steinzor.

You have been before us before. Just briefly, I will just say you say it is a crystal ball to be able to project cost, although you testified that the health benefits that go out to 2025 can be made. So which is it? Is economic cost projected out 25 years a crystal ball or are the health savings projected out to 2020, 2025? Can you project health benefits but not project economic costs?

Ms. STEINZOR. The health——

Mr. SHIMKUS. Which is the real crystal ball?

Ms. STEINZOR. The health benefits have to do with rules that have already been promulgated. Your legislation deals with rules that haven't——

Mr. SHIMKUS. You say we can't project economic costs 20 to 25 years out?

Ms. STEINZOR. When you have a final rule, you can, but your legislation covers——

Mr. SHIMKUS. You can't have it both ways. You can project out to 2025.

Mr. WHITFIELD. Mr. Matheson, who is the author of the legislation with Mr. Sullivan, you are recognized for 5 minutes.

Mr. MATHESON. Thank you, Mr. Chairman. I appreciate the time and appreciate the witnesses coming here today.

I think the goal behind this legislation, and we are here to have a hearing to figure out if there are ways to perfect it and make it better, but the goal as you look at the situation where EPA right now has the ability to look at costs and benefits of rules individually, and that is important. The goal here is, maybe we ought to take a look at how these things work when you put them all together, and we want to harmonize that process, and I think that really is the goal. The goal is not necessarily to delay things. The goal is to have some credible information where instead of everyone working in their own little stovepipe, we are all working together and looking at the cumulative impact, and if there are suggestions among the witnesses, any of them, about how to refine this legislation to meet those goals better than the way it is written now, as one of the authors of the legislation with Mr. Sullivan, we are open to that, and so beyond the testimony today, if people want to submit other ideas to us, I ask you to do that because that is where we really coming from. We are not talking about focusing only on costs. Mr. Schaeffer, I noticed from your testimony you indicated you felt concern that the study would only focus on study, but there is nothing in the legislation that mentions specifically costs or benefits. The legislation talks about effects and impacts across a variety of sectors, and I think that is what we are looking for. So I don't think our intent was to not include other considerations when we talk about effects and impacts. There is a quick statement and I wanted to ask a couple questions.

First of all, Mr. Cauley, as you know, NERC is one of the participants that is included in the study, and you have already studied aggregate effects of four of EPA's pending rules—cooling water intake structures, Utility Maximum Available Control Technology, Clean Air Transport Rule and coal combustion residuals. Can you elaborate on the recommendations NERC provided to manage the implications of implementing those four rules to ensure power supply is not disrupted?

Mr. CAULEY. Our study looked at plans that were in place with existing resources and planned resources, and our assessment determined that as much in the worst case if 78 gigawatts of generation would be impacted would become no longer cost-effective to operate. So our concern as a reliability organization is ensuring that if those rules were put in place that we would have sufficient time

and planning to have alternative resources put in place, and that is our job, is to look out into the future and see if there is something bad going to happen for reliability.

Mr. MATHESON. Do you think it is possible to expand that study for all of the rules that are listed in the draft legislation?

Mr. CAULEY. I think as long as there is good definition around the expected rules and obligations, I think that kind of study can be done.

Mr. MATHESON. Mr. Bailey, you mentioned in your testimony like a lot of electric utilities around the country and in my district that because the rules from the EPA have not been coordinated, you are facing a lot of uncertainty over how to plan for upgrades and comply with various different deadlines. How do you think this act will help Big Rivers with investment decisions and planning for your facilities as you go forward?

Mr. BAILEY. Well, certainly if there is a coordinated effort, it could lead to answers at least at the same time and then presumably there will be a reasonable time to implement, and certainly you have got certainty at that point and feel much more comfortable proceeding.

Mr. MATHESON. Mr. Chairman, at this point that is all the questions I have. I just want to reiterate, if people have suggestions to meet the goals I talked about, we are open. That is why we have hearings on draft legislation to look for ideas, and we welcome suggestions. Thanks so much. I yield back.

Mr. WHITFIELD. Thank you, Mr. Matheson. Mr. McKinley, you are recognized for 5 minutes.

Mr. MCKINLEY. Thank you, Mr. Chairman.

I have got a series of observations, as I say. One was, and I am sorry that the Congressman from California is not here right now because he made the statement earlier, he said that we should—his quote, "We should consider the costs when we are evaluating the benefits," but yet we have had come before our committee members of the EPA that said that is not their responsibility. I am not sure, there is a contradiction there. If we should, then why aren't we doing it? And I think that Dr. Ridgway has really hit on this, this whole subject of uncertainty. As engineers, we deal in certainty, and there was an issue, I think Mr. Schaeffer talked about, we should follow the studies. The train wreck was a known entity. We know when it was going to happen. We could see it on a chart. But yet here are two reports that show the uncertainty with this is that—I would like to enter these in the record if I could get unanimous consent to admit these. These are reports that were done in 1993 and 2000 that said, for example, fly ash is not a hazardous material but yet the EPA is going to impose that. That is the uncertainty we are talking about. You can have a schedule, but when you are dealing in the real world where the EPA rejects its own studies and does this, I just find that unconscionable. It is no wonder that Purdue and other universities and other coal-fired generating houses are scared to death of what is going to happen as it relates to the fly ash.

I am just curious, if I could ask a question of you, Dr. Ridgway, how much money is that going to cost Purdue by not being able to implement their project?

Ms. RIDGWAY. The boiler project or for the coal ash?

Mr. MCKINLEY. Coal ash.

Ms. RIDGWAY. From the coal ash standpoint, and we generate coal ash right now, but our current cost for handling for that material right now is about $300,000 a year. If EPA goes and classifies that material as hazardous waste, it increases out cost to $25 million a year to dispose of that material.

Mr. MCKINLEY. But yet that is the frustrating part here is to sit here as a new member and hear these people come up and say that we are not supposed to consider the cost. Where is that $25 million going to come from? Is it student fees? Is it going to be increased taxes? I am just amazed at the insensitivity to people about these cost issues of what they would be.

But go to the boiler issue. You were going to put a new boiler in, a new high-efficiency unit in?

Ms. RIDGWAY. Yes, we were going to add capacity to our existing combined heat and power facility. It was a clean coal technology boiler, and because of regulatory uncertainty, we have not moved ahead with that project. So we still have to provide steam to campus and we still have to provide chilled water, and we will be purchasing more electricity because we will be unable to generate that power in-house, which is what we historically have been able to do, and I don't have the specific numbers but I can certainly get that to you later.

Mr. MCKINLEY. Thank you. I think you have gone right to the core of this train wreck, the uncertainty that is swirling around. We are seeing companies who use fly ash, that use fly ash in concrete as an additive. They use fly ash in drywall manufacturing and they are scared right now. They don't know what to do. Everyone is frozen in place because of the uncertainty of this regulatory activism from the EPA. Companies are afraid to do anything with it. So what we are going to wind up doing is we are either going to lose jobs, we are going to spend a lot more money and we are just going to cause people concern, and I don't think that is our mission here in Washington to do that.

A major powerhouse that was going to burn Ohio has switched over to gas because of the uncertainty that you have dealt with at Purdue. That means thousands of jobs have been lost in the coal industry of West Virginia and all through Appalachia because of the uncertainty of the EPA. I have got a chemical plant in my district that is seriously considering, they are taking designs right now to switch from coal over to gas. That is going to cost West Virginia and Appalachia thousands of jobs over a period of years. I can't thank you enough for coming here, Ms. Ridgway, to be able to talk about this issue. You have an exact example of why we should be more concerned about reining in this rogue agency. Thank you very much for coming.

Ms. RIDGWAY. Thank you.

Mr. WHITFIELD. Thank you, Mr. McKinley, and Ms. Capps, you are recognized for 5 minutes.

Mrs. CAPPS. Thank you very much, Mr. Chairman, and I want to express my thanks to each one of our witnesses for their presence here today and your testimony.

Mr. Schaeffer, we have heard a lot of concern today about the notion that EPA has decided to impose multiple regulations in the upcoming years, but as you point out, these regulations are long overdue and industry has had years to plan to meet and there are no surprises here. There has been a lot of time to plan to meet these requirements. Would you discuss the impacts of this delay on industry and on the public? I know you brought it up in your testimony but just so we get this clear in the record.

Mr. SCHAEFFER. Congresswoman Capps, as I was trying to explain earlier, that we do have some power companies that have gotten ahead of the curve and, yes, in some cases have made the decision to switch to gas. In, you know, a market economy, we are going to see those decisions, and some of that is driven by regulation. A lot of it is driven by the fact that gas is a cheaper fuel now, and I thought I had read that Purdue had switched a boiler to gas that they were planning to build for that reason. In the State of Maryland, we have got very strict requirements that haven't seemed to affect the use of coal in the State. We still have big coal plants. It is just that they are well scrubbed and well controlled. So if you have a company that has banked on delay and waited until the last minute, hasn't looked at the deadlines, hasn't followed the litigation, hasn't anticipated these rules, yes, they are going to face some significant cost but you have others that have gotten far ahead of it.

The point I was also trying to make earlier is, if you have not spent much to comply with requirements that are coming, if you haven't scrubbed your plant, for example, and you have got a 60-year-old coal plant designed to last 30 years, you are going to have to pay for some pollution controls, and to be shocked that that is arriving now I think is—I don't understand that. I don't see how anybody could not see that coming.

Mrs. CAPPS. Thank you.

Given the importance of these regulations to public health, I would hope that any desire to understand the cumulative impacts of regulations would not in themselves become obstacles to their implementation. A cumulative estimate of regulatory impact can only have value if it is credible. I am concerned that the report envisioned by this bill will be rife with uncertainties and will be attacked by all the stakeholders, as one example, which has come up before, coal ash. The committee would be asked to analyze the impact of coal ash regulations along with other rules, even if that regulation is not finalized. We have heard conflicting testimony today about the potential impacts of regulating coal combustion waste because there are still a number of unknowns with regard to the rule. It is not known whether regulation will occur under subtitle C or D, as one example. It is not known whether regulation under subtitle D, which would create no federally enforceable requirements, would have a significant impact. And it is not known whether regulation under subtitle C would impact beneficial reuse because of stigma effects.

So in order to form the analysis required by this bill, the committee would need to fill in those unknowns with assumptions, no choice that will be supported by all stakeholders, and we can illus-

trate that right here today. I could ask three of you a question, which I will now, to demonstrate.

Dr. Ridgway, if the committee assumes subtitle C regulation and little impact on beneficial reuse, would you view the resulting analysis as credible?

Ms. RIDGWAY. I am not sure I can speak to that because I don't know what information goes into that analysis.

Mrs. CAPPS. That is exactly the point. So really, to be honest, then you would have to say, no, I couldn't just for all the reasons you said.

Ms. Steinzor, on the other hand, if the committee assumes subtitle C regulation and a halt to beneficial refuse, would you view the resulting analysis as credible?

Ms. STEINZOR. No.

Mrs. CAPPS. And Mr. Schaeffer, if the committee assumes subtitle D regulation and nationwide compliance with the resulting guidelines, would you view the resulting analysis as credible? Well, there you have it. There shows where we are. Our panel of seven stakeholders can't agree on the impact of one rule, let alone the cumulative impact of the rule and Clean Air Act regulation. I cannot imagine how a committee of Cabinet Secretaries and Mr. Cauley is going to produce a credible estimate of the impact of these listed rules, let alone the additional rules that aren't listed, and that would be with all the time in the world, not within the one month that they appear to have under this bill, and I have used as much time as I have.

I appreciate the opportunity. Thank you, Mr. Chairman. I will yield back.

Mr. WHITFIELD. Mr. Olson, you are recognized for 5 minutes.

Mr. OLSON. I thank the chair, and before I get started, I would like to identify myself with the comments from my colleague from Texas, Mr. Green, who said that we like gas in Texas. We like it a lot.

Welcome to the witnesses. I am grateful for your expertise and your patience today.

My dad spent his entire career in the paper industry, over 35 years, mostly in the white mills across our country. I know firsthand knowledge that the industry is committed to clean air and clean water. So my first question is for you, Mr. Hess. The proposed Cooling Water Intake Rule, 316(b), subjects facilities beyond electric generation facilities to regulation including paper manufacturers and oil refineries. Will these facilities be able to comply with the criteria in the proposed rule and what are the economic impacts? Put another way, is the technology there and what is it going to cost?

Mr. HESS. I can't speak to the details of that regulation because I have a staff, just as you have a staff, that advises me on environmental regulations, but I can tell you it is going to cost a lot because the environmental regulations that we have implemented at Spring Grove to address the EPA MACT and other rules have cost $50 million at the end of the 1990s and we are looking at $10 million to $20 million for Boiler MACT currently, and if the original MACT program is revised, we are looking at another $10 million to $20 million. I don't have the specifics on the regulation you ref-

erenced but I am just giving you a taste of the impact that we have had at the Spring Grove mill.

Mr. OLSON. Thank you, sir. So I assume that is a pretty negative impact on our ability to complete in the global market?

Mr. HESS. Yes, sir, that is the major concern that I have is that we do complete in the global marketplace and that all these costs, the cumulative costs have to get passed through the supply chain, which makes us less competitive in the marketplace, makes imports and other countries have lower cost products, and at the end of the day he who has the best product at the lowest cost wins. We can complete in the global marketplace if we are playing on a fair playing field but today we are not because no other country plans to regulate as the train wreck is coming.

Mr. OLSON. Yes, sir, and that is something we are here to stop.

Mr. Segal, my next question is for you, sir. In your opinion, do you think EPA has been proactive during the rulemaking process and explaining to stakeholders and the public the reasons for certain regulations and potential jobs and economic impacts of those regulations?

Mr. SEGAL. Well, the best thing to point to to answer that question, Mr. Olson, is to look at the Regulatory Impact Analysis that the EPA released when it advanced its rule, and it is a very, very curious document. I don't commend it to you. It is north of 500 pages and it will cure any insomnia, but the good part about it is, it really lays bare a lot of what is going on here. One of the critical assumptions the agency made and that explains why they say the cost of that rule is much less than everybody else who is taking a look at this rule is they make an assumption about certain technologies that could be used so that you wouldn't have to install scrubbers necessarily. So we thought this was very curious because, you know, my clients actually make power. You know, we know a thing or two about that technology so we thought we would take a look. And we followed, like with so many things, you had to follow the footnotes, and when you do, you find there is no study on the technology they cited. There is a 5-page PowerPoint presentation that says as one of its recommendations hey, we did a 2-week study here, we ought to see if it scalable and could actually be used on a power plant, and the EPA accepted that with 100 percent confidence in order to lower their cost assessment of the rule. If we had done that in a rulemaking comment or worse yet, in our of our corporate reports on our earnings, can you imagine the hue and cry that would have been raised? But apparently for EPA, when it comes in their favor making untransparent assumptions is a great way to reduce costs in your Regulatory Impact Analysis, and that is just one example. We have many other examples that would illustrate the point.

I do want to make one other point, though, sir. We have heard over and over again these companies have known for 20 or 30 years what the rules would be, they have been living on the hog by simply not complying for the intervening 20 years. The trouble is, there is a fundamental disagreement between Professor Steinzor and Mr. Schaeffer. See, Mr. Schaeffer says that 20 years in advance you ought to know what all the details of the rule are just by looking at what the statutory obligation is. Ms. Steinzor says

you can't possibly do an assessment, an economic assessment of a rule until you have the final rule, which, by the way, strikes me as reasonable. And it therefore strikes me that Mr. Schaeffer is perhaps not so reasonable in suggesting that people have known for 20 years what their obligation was. I think he knows that and I know that. I think all of you should know it too.

Mr. OLSON. Thank you, and that is why I have introduced a bill to make sure that EPA puts in a study the numbers of job gains or losses from any regulation, and again, "curious," that is not a word we want to use in a regulatory environment. Thank you for your time.

Mr. WHITFIELD. Thank you, Mr. Olson. Mr. Inslee, you are recognized for 5 minutes.

Mr. INSLEE. Thank you, Mr. Segal. You represent something called the Electric Reliability Coordinating Council. How many companies are members of that coalition?

Mr. SEGAL. I think eight.

Mr. INSLEE. And could you give us their names, please?

Mr. SEGAL. Sure.

Mr. INSLEE. Thank you. You don't have to right now but if you could just give it to us for the record, I would appreciate that.

Mr. Schaeffer, my understanding of this proposed legislation would basically assess some of the costs associated with some regulatory compliance, particularly for things adopted to try to improve the environment and therefore improve the health of Americans. My understanding of the legislation is, it does not attempt to assess the value to health of Americans that would be associated with compliance with those rules nor does it assess the improvement in economic performance associated with that corresponding health improvement of Americans, nor does it represent the economic growth associated with a lot of the technologies associated with compliance with these rules. I have to tell you, I just can't understand why we would on any of these issues look at just cost and not benefits, unless you would assume there is never a benefit of anything the government has ever done in human history. So I guess the question is, is my assessment of the legislation correct in that regard, and can you fathom any reason why we wouldn't want to look at benefits as well as cost?

Mr. SCHAEFFER. I haven't, Congressman, and I heard earlier that balance was the goal. I have a copy of the draft and now I am concerned that I may not have the right copy because I am looking at the list of the things that the agencies would be required to study. I see no mention of health. I see no mention of the economic issues you just mentioned on the other side of the ledger, and it is possible I have the wrong copy or an earlier draft.

Mr. INSLEE. So let me ask the panel——

Mr. WHITFIELD. I think you have the right draft.

Mr. SCHAEFFER. Well, I have the list in front of me and I heard Congressman Matheson suggest that health was in here, and I don't see it.

Mr. INSLEE. So let me ask the panel, do any of the panelists—I am trying to figure why we would ever embrace this idea of looking at just costs and not benefits of proposals. That just doesn't make sense to me, unless you hold certain perceptions. So let me

ask you this. Do any of the panel members believe that there has never been a benefit to human health that came from EPA regulations? Do any members believe that on the panel? So we are all on board that at least in some instances the EPA helps Americans' health. So that is not a reason for not looking at the benefits.

I would be open to any of you suggesting why if we are trying to make intelligent decisions about hard regulatory decisions here, can anyone advance a reason to ignore an evaluation by the U.S. government of the benefits associated with any of these regulatory activities? Can anybody suggest a reason why we would only look at the costs? Mr. Segal has raised his hand.

Mr. SEGAL. Well, you are not going to like me for suggesting this but I will say this.

Mr. INSLEE. I haven't formed an opinion yet.

Mr. SEGAL. That is right, and that is why I fear that we will be moving in that direction. I am going to suggest that it is hard to accumulate benefits in environmental rules, and let me explain why. You know, since I have come to Washington, almost every clean air rule claims particulate matter benefits as a reason to adopt that rule. Now, I have come to the conclusion, sir, that some of these benefits are the same benefits that are being claimed for multiple rule after multiple rule, even though the costs, because they are requiring new pieces technology, are not the same cost. So I would be oK with accumulating, doing a cumulative analysis of benefits if we back out—and I cover this in my statement—if we back out double counting of benefits that goes on when rule after rule after rule uses the same homework. EPA's own analysis on Utility MACT said we didn't do any effort to estimate the benefits of actually reducing hazardous air pollutants. All we did was plug in the old PM numbers that we used last time around. That is bad homework.

Mr. INSLEE. I think I understand what you are saying. So you wouldn't have an objection then if this committee amended this bill to, say, let us look at the health benefits and subsequent economic benefits of some of these rules and because cautious not to allow double benefits to be counted? But the general idea is——

Mr. SEGAL. I would like to work on something like that and really focus in on that double counting.

Mr. INSLEE. Well, let me just ask you, don't you agree we ought to look at the benefits of these rules in this legislation as well as the cost, Mr. Segal? Would you agree as a general principle we ought to do that?

Mr. SEGAL. I was curious about Mr. Matheson's statement too, and I looked at the bill, and it says that you are supposed to look at cumulative impact and then it says "impact is supposed to include" and it lists all these economic factors. But, I mean, I guess cumulative impact could other things too. It is not exclusive of that list, so maybe that is what Mr. Matheson meant. I don't know. I haven't talked to Mr. Matheson about it.

Mr. INSLEE. Thank you.

Mr. WHITFIELD. Thank you, Mr. Inslee. At this time, Mr. Griffith, you are recognized for 5 minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman.

Mr. Segal, going back to this report, I was very interested in your comments in regard to how the EPA lowered their costs by using a slide deck that they then extrapolated from in order to lower the cost. Am I not correct that if this was a corporation doing that, that the people who knew they were lowering that to make it look like there was less cost would suffer criminal penalties?

Mr. SEGAL. I tell you, if it was a corporation and we based representations in our quarterly filings on something like that, we would be in a world of trouble. If it were a law firm basing legal analysis on that, we would be in a world of trouble but the EPA felt pretty comfortable with it.

Mr. GRIFFITH. A world of trouble includes criminal penalties, does it not?

Mr. SEGAL. That is not my field of practice but I wouldn't call you a liar.

Mr. GRIFFITH. All right. Thank you. And I am not sure on each case but it was my area of practice.

Mr. SEGAL. All right.

Mr. GRIFFITH. Let me shift gears. Mr. Hess, thank you very much for being here. Some of the folks on this committee who are getting to know me think that all we do in south West Virginia is coal because I talk about it all the time, but we also have textiles and cellulose production and paper production, and most of the pressure on our industry in our area, and I want to know if this is true nationally, is from Scandinavia and South America. Would that be true nationally, or is that just my particular area?

Mr. HESS. That is part of the pressure. There is also pressure from Asia, I mean, and from China as well.

Mr. GRIFFITH. All right. And the plant in my district that employs a lot of the folks in the Allegheny highlands indicated that they had a chart similar to the one that we have got here from Edison with all the different things coming at them in the next few years, and if they get to a certain point they are just not going to be able to survive the market pressures and that they would probably have to move to properties in another country. Is that true nationally, you are finding that to be the same situation, that most of these companies, if all of these hit them at one time they are just going to have no choice but to go somewhere else?

Mr. HESS. I can guarantee you that as part of the options analysis that companies are going through, they are looking at whether they can maintain their operation within the United States, and because of the confusion that is associated with the rules and the uncertainty and the magnitude of change that is coming at the pace it is coming, it is impossible to plan appropriately in the business, and I can tell you right now, we are looking at the possibility of boiler shutdown as well because of these type of rules.

Mr. GRIFFITH. And not every plant can switch over to natural gas, can they?

Mr. HESS. No, not every plant can switch over to natural gas, and clearly the boiler MACT rules are pushing plants towards natural gas. We are doing a natural gas study. But not every plant has the infrastructure to burn natural gas. In addition, you know, part of what makes a paper company successful is being able to

burn biomass residuals, and there is a whole sister act with regard to biomass residuals being classified as solid waste.

Mr. GRIFFITH. Let me underline also that few of our furniture manufacturers have survived, and they do the same thing. They burn off the leftover biomass, the wood pieces that they don't use.

Mr. HESS. And that is what the President himself has encouraged business to do. It is a renewable resource, biomass, and with the regulations coming down, with the sister regs about the biomass being classified as solid waste, it will trigger incinerator MACT for some of these plants and encourage them not to burn biomass but instead convert to fossil fuel, which is exactly opposite of what the Administration is pursuing.

Mr. GRIFFITH. Let me switch to you, Dr. Ridgway. We have some public universities in the same plight that Purdue is in, but I am wondering if you can tell me, because I think it is true, that there are a lot of independent, non-public universities and colleges, maybe not as big as Purdue but who are in a similar plight, but they don't have anybody but the students to go to to pay for this. Isn't that true? Because they don't have taxpayers that they can ask for increased money to pay for some of these things.

Ms. RIDGWAY. I honestly can't speak to the funding mechanisms of other institutions. I just know our own process.

Mr. GRIFFITH. But you said earlier that you would have to go and ask the State for more money. If you don't have the State and all you have are the parents and the students who are going to the school, it would make sense, would it not, that they would end up having to bear the cost through higher tuition?

Ms. RIDGWAY. It is possible, but I won't commit to that.

Mr. GRIFFITH. All right. And it is possible that if the State doesn't have the money, that the trustees of any public institution including Purdue might be forced to ask the students for a tuition increase. Isn't that true?

Ms. RIDGWAY. It is an avenue that is available.

Mr. GRIFFITH. And so in essence, one thing that could be the result of this is higher tuition and making it more difficult for middle-class and lower-income families to be able for their children to get an education and thus damage America's future. Isn't that also true?

Ms. RIDGWAY. You have got to get the money from somewhere.

Mr. WHITFIELD. Mr. Griffith, thank you very much, and that will conclude today's hearing. We appreciate all of you taking time to be with us. We do intend to continue to look at this legislation. I anticipate that we will try to move this legislative and look forward to working with all the members of the committee to make it the most effective that we can. And once again, I apologize to you all for the delay that we had during the votes but we look forward to working with you on this issue and others as we move forward.

The record will remain open for 10 business days for additional material to be inserted.

With that, the meeting is adjourned. Thank you.

[Whereupon, at 4:37 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

PREPARED STATEMENT OF HON. FRED UPTON

Before I came to Congress, I worked in President Reagan's Office of Management and Budget. I understand the regulatory process; I know how important it is to have reasonable regulations to protect the health, safety, and well-being of the American people without jeopardizing our economic competitiveness.

That is why I am so troubled by the onslaught of rules coming from the EPA, with seemingly no consideration of how these rules will affect the competitiveness of our energy and manufacturing sectors. Each of these regulations has a considerable cost on its own, but we know each rule does not exist in a vacuum. The real consequences can only be understood if we look at the cumulative impact, when these regulations are layered one on top of one another.

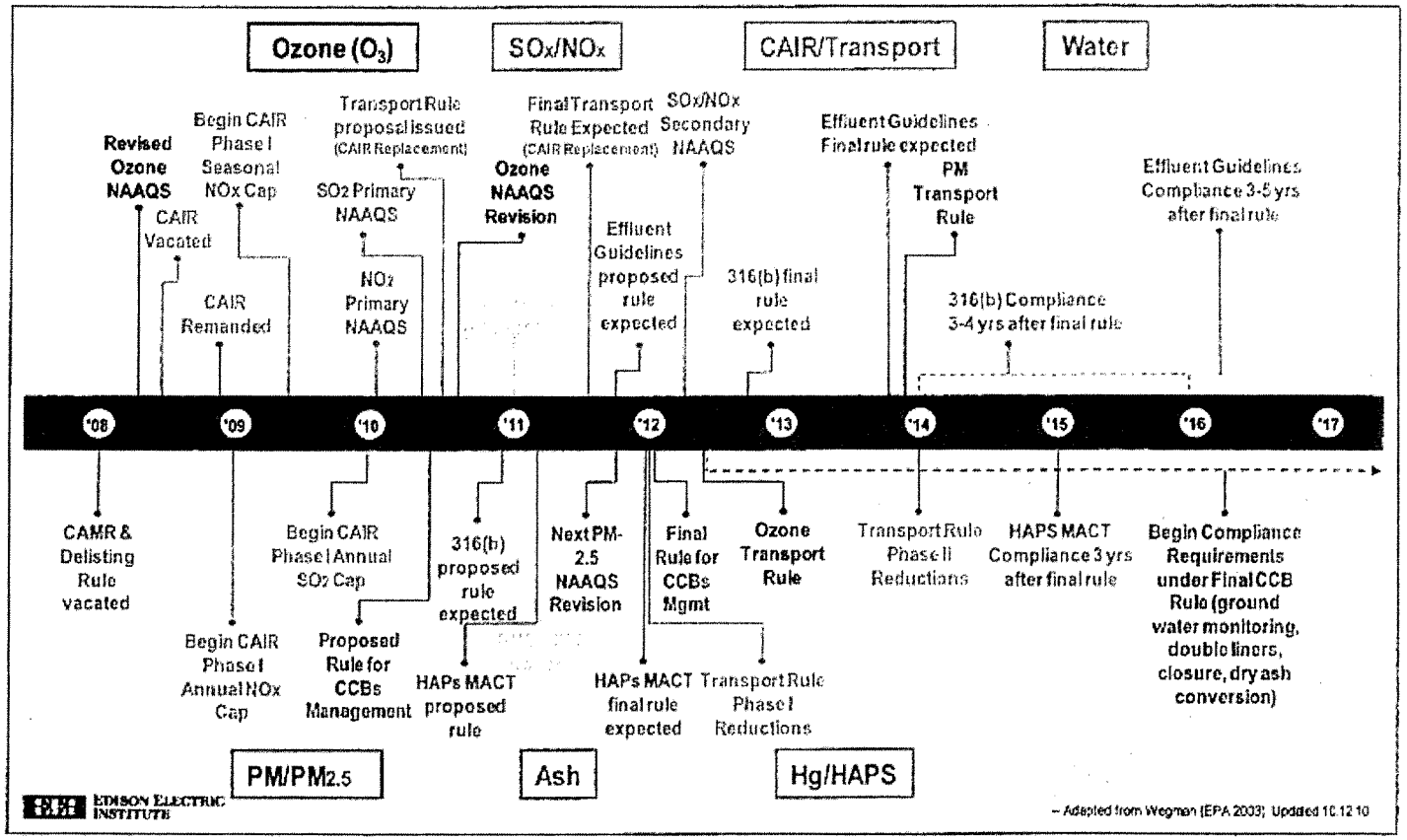
And that is why we are here today—to begin a discussion of the TRAIN Act, which seeks to study the cumulative impact of this regulatory agenda on our economy, on our nation's global competiveness, and on jobs. I applaud Representatives Sullivan and Matheson for offering this discussion draft. Everyone knows I place a priority on bills developed in a bipartisan fashion, which is why I look forward to moving this bill.

Let me give just a few examples of EPA's breakneck regulatory pace to explain why this proposal is so important. The agency is not just reviewing one or two of the National Ambient Air Quality Standards for the six criteria pollutants under the Clean Air Act—EPA is taking steps to make a whole host of air standards more stringent simultaneously, despite the fact that work still must be done to achieve earlier standards. And it's possible even more standards may be coming: EPA has not yet announced whether it plans to set a National Ambient Air Quality Standard for carbon dioxide.

Individually, many of these rules are so costly that they could noticeably increase energy prices and possibly cause some regulated facilities to shut down. But it's the cumulative effect of all of them that is truly unprecedented—and in fact, we don't believe the cumulative impact is fully understood, because it has not been well studied. Again, that is why we need the TRAIN Act. This discussion draft will not overturn any regulations, or limit EPA's ability to regulate going forward—it simply asks for the information we need to better understand the consequences of these rules in order to protect our economy and our jobs while also protecting public health.

A study conducted by the North American Electric Reliability Corporation looked at four EPA regulations affecting electric power plants. It found that multiple regulations with overlapping deadlines strained scarce resources—for instance, with many power plants trying to build modifications at the same time, competing for labor and engineering services to do the work, it becomes difficult to coordinate which power plants will meet our demand for electricity on the grid. Between electric generating units that will be temporarily offline to make the required changes and those that will be permanently shut down, the study concluded that overlapping regulations pose real risks to the reliability of our electricity supply.

With rising gasoline prices and stubbornly high unemployment, we need a better sense of the cumulative impact of these regulations. And in an increasingly globalized economy, we also need to look at how unilateral regulations affect our international competitiveness. This is especially so since China, India, and other nations do not have regulatory regimes even remotely as costly and as stringent as that in the U.S. The TRAIN Act discussion draft offers a good start to gathering the information needed to ensure federal regulations are helping rather than causing harm. I yield back.


Ozone (O3)
SOx/NOx
CAIR/Transport
Water
Revised Ozone NAAQS
CAIR Vacated
Begin CAIR Phase I Seasonal NOx Cap
CAIR Remanded
Transport Rule proposal issued (CAIR Replacement)
SO2 Primary NAAQS
NO2 Primary NAAQS
Ozone NAAQS Revision
Final Transport Rule Expected (CAIR Replacement)
Effluent Guidelines proposed rule expected
SOx/NOx Secondary NAAQS
316(b) final rule expected
Effluent Guidelines Final rule expected
PM Transport Rule
316(b) Compliance 3-4 yrs after final rule
Effluent Guidelines Compliance 3-5 yrs after final rule
'08
'09
'10
'11
'12
'13
'14
'15
'16
'17
CAMR & Delisting Rule vacated
Begin CAIR Phase I Annual NOx Cap
Begin CAIR Phase I Annual SO2 Cap
Proposed Rule for CCBs Management
316(b) proposed rule expected
HAPs MACT proposed rule
Next PM-2.5 NAAQS Revision
HAPs MACT final rule expected
Final Rule for CCBs Mgmt
Ozone Transport Rule
Transport Rule Phase I Reductions
Transport Rule Phase II Reductions
HAPS MACT Compliance 3 yrs after final rule
Begin Compliance Requirements under Final CCB Rule (ground water monitoring, double liners, closure, dry ash conversion)
PM/PM2.5
Ash
Hg/HAPS
EDISON ELECTRIC INSTITUTE
– Adapted from Wegman (EPA 2003) Updated 10.12.10

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Rules and Regulations

ENVIRONMENTAL PROTECTION AGENCY (EPA)

40 CFR Part 261

[530-Z-93-009; FRL-4689-8]

Final Regulatory Determination on Four Large-Volume Wastes From the Combustion of Coal by Electric Utility Power Plants

Part V

58 FR 42466

DATE: Monday, August 9, 1993

ACTION: Final regulatory determination.

To view the next page, type .np* TRANSMIT.
To view a specific page, transmit p* and the page number, e.g. p*1

SUMMARY: Today's action presents the Agency's final regulatory determination required by Section 3001(b)(3)(C) of the Resource Conservation and Recovery Act (RCRA) on four large-volume fossil-fuel combustion (FFC) waste streams-fly ash, bottom ash, boiler slag, and flue gas emission control waste-studied in the Agency's February 1988, Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants (RTC). EPA has concluded that regulation under Subtitle C of RCRA is inappropriate for the four waste streams that were studied because of the limited risks posed by them and the existence of generally adequate State and Federal regulatory programs. The Agency also believes that the potential for damage from these wastes is most often determined by site- or region-specific factors and that the current State approach to regulation is thus appropriate. Therefore, the Agency will continue to exempt these wastes from regulation as hazardous wastes under RCRA Subtitle C. However, EPA believes that industry and the States should continue to review the appropriate management of these wastes. EPA will consider these wastes during the Agency's ongoing assessment of industrial non-hazardous wastes under RCRA Subtitle D.

EPA plans to make a final regulatory determination on the remaining FFC waste streams (beyond the four listed above) subject to Section 3001(b)(3) of RCRA by April 1, 1998.

EFFECTIVE DATE: September 2, 1993.

FOR FURTHER INFORMATION CONTACT: For further information on the regulatory determination, contact the RCRA/Superfund hotline at (800) 424-9346 or (703) 412-9810, or Patti Whiting at (703) 308-8421.

58 FR 42466, *

SUPPLEMENTARY INFORMATION:

Table of Contents

I. Background

A. Statutory Authority

Today's notice is issued under the authority of Section 3001(b)(3)(C) of RCRA, which requires that after completion of the Report to Congress mandated by Section 8002(n) of RCRA, the Administrator must determine whether Subtitle C

regulation of fossil fuel combustion wastes is warranted.

B. History of the Combustion Waste Exclusion

In December 1978, EPA proposed the first regulations to implement Subtitle C of RCRA. At that time, the Agency recognized that certain large-volume wastes, including wastes from the combustion of fossil fuels, might warrant special treatment. However, the Agency had very little information regarding the nature of and risks posed by these large-volume wastes. Additionally, the Agency had no data on the costs and effectiveness of technologies for managing these wastes. In light of these uncertainties, EPA proposed a limited set of regulations for the management of these wastes (43 FR 58946, 59015, December 18, 1978).

On May 19, 1980, EPA promulgated the initial regulations implementing Subtitle C. By then, however, Congress was debating RCRA reauthorization and both Houses had passed bills restricting EPA's authority to regulate large-volume wastes under Subtitle C of RCRA. Anticipating the enactment of legislation amending RCRA Section 3001, EPA excluded fossil fuel combustion wastes from these regulations (45 FR 33084, 33089, May 19, 1980).

In October 1980, Congress passed the Solid Waste Disposal Act Amendments. Among other things, the amendments temporarily exempted from regulation as hazardous wastes certain large-volume wastes generated primarily from the combustion of coal or other fossil fuels (RCRA Section 3001(b)(3)(A)(i)). These large-volume wastes include fly ash waste, bottom ash waste, boiler slag waste, and flue gas emission control (or flue gas desulfurization) waste. In RCRA Section 8002(n), Congress directed EPA to conduct a detailed and comprehensive study based on eight study factors (discussed in detail below) and to submit a Report to Congress on "the adverse effects on human health and the environment, if any, of the disposal and utilization of fly ash waste, bottom ash waste, slag waste, flue gas emission control waste, and other byproduct materials generated primarily from the combustion of coal or other fossil fuels."

Finally, in RCRA Section 3001(b)(3)(C), Congress directed that within 6 months of submitting the report, EPA must, after public hearings and opportunity for comment, decide whether regulation of the management of the temporarily exempt FFC wastes as hazardous wastes under Subtitle C is warranted. Once the decision is made, the Administrator must publish the Agency's regulatory determination in the Federal Register.

In 1981, EPA provided an interpretation of the RCRA regulations regarding the exclusion of fossil-fuel combustion wastes from regulation under Subtitle C n1 . EPA stated that, pending the results of the Report to Congress, the Agency would interpret the following to be exempt from RCRA Subtitle C pending further study: (1) Fly ash, bottom ash, boiler slag, and flue gas emission control wastes resulting from: the combustion solely of coal, oil, or natural gas, the combustion of any mixture of these fossil fuels, and the combustion of any mixture of coal and other fuels n2 where coal makes up at least 50 percent of the mixture, and (2) wastes produced in conjunction with the combustion of fossil fuels that are necessarily associated with the production of energy and

that have been and are mixed with and co-disposed or co-treated with fly ash, bottom ash, boiler slag, or flue gas emission control wastes from coal combustion.

n1 Letter from G. Dietrich, U.S. EPA, to P. Emler, Utility Solid Waste Activities Group, January 13, 1981, Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants, February 1988, Appendix A.

n2See discussion below on page 10.

RCRA was amended again in 1984 by the Hazardous and Solid Waste Amendments (HSWA) (Pub. L. No. 98-616, 98 Stat. 3221). These amendments [*42467] added Section 3004(x), which gave EPA the flexibility to promulgate regulations under Subtitle C that considered the unique characteristics of some large-volume wastes, including FFC wastes. Specifically, if EPA determined that some or all of the wastes from fossil-fuel combustion should be regulated as hazardous waste, it could modify certain HSWA requirements to take into account the special characteristics of the wastes, the practical difficulties of implementing the standards, and site-specific characteristics, as long as the modifications still protected human health and the environment.

In February 1988, EPA submitted its Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants, as required under RCRA Section 8002(n). Because coal-fired electric utilities generate a large majority of all fossil-fuel combustion wastes, the RTC focused on wastes generated by coal-fired electric utilities. The document does not address wastes generated by utilities burning other fossil fuels or wastes from non-utility boilers burning any type of fossil fuel (the Agency deferred study of these waste streams until a later date). The report provided the Agency's analysis of available data considering the eight study factors listed in Section 8002(n) of RCRA and presented the Agency's tentative determination regarding large-volume wastes from coal-fired electric utilities. Following the release of the RTC, the Agency provided a notice and comment period that extended through May 16, 1988, and held a public hearing in Denver, Colorado, on April 26, 1988. Appendix A summarizes the comments received on the RTC.

Because of other priorities, the Agency did not publish the regulatory determination for fossil-fuel combustion wastes within the timeframe established in Section 3001(b)(3)(C). As a result, a suit was filed on behalf of the Bull Run Coalition (an Oregon citizens group), with the Edison Electric Institute intervening as plaintiffs. n3 On June 30, 1992, the Agency entered into a Consent Decree that established a schedule for the Agency to complete the regulatory determinations for all fossil-fuel combustion wastes. The Consent Decree divides FFC wastes into two categories: (1) Fly ash, bottom ash, boiler slag, and flue gas emission control waste from the combustion of coal by electric utilities and, (2) all remaining wastes subject to RCRA Sections 3001(b) and 8002(n). Separate schedules are provided in the Consent Decree for each category of waste.

n3 Frank Gearhart, et al. v. William K. Reilly, et al., No. 91-2435 (D.D.C.)

In accordance with the requirements of the Consent Decree, the Agency notified the parties to the litigation on December 1, 1992, that a regulatory determination for fly ash, bottom ash, slag, and flue gas emission control waste

from the combustion of coal by electric utilities would be made by August 2, 1993. For the remaining FFC wastes, the Agency indicated that further study was required and that a regulatory determination would be completed for these wastes by April 1, 1998.

In preparing the regulatory determination, EPA collected and reviewed recent information on wastes from coal-fired electric utility power plants. On February 12, 1993, EPA published a Notice of Data Availability in the Federal Register, soliciting comments on these data (58 FR 8273). In the notice, EPA also requested comments on a proposed methodology to be used in making the final regulatory determination. This three-step analytical approach was recently used in making the June 13, 1991, regulatory determination for special wastes from mineral processing (56 FR 27300). Comments on the newly available data and on the proposed methodology are discussed in Appendix B of today's notice.

Today's decision is based on the RTC and the data and analyses that underlie the report, comments on the RTC, supplemental information gathered after the RTC, and comments on that newly available information.

C. Overview of the Report to Congress

1. Scope of the Report

EPA published the RTC in 1988. The RTC documents EPA's study of special wastes from coal-fired utilities temporarily excluded from regulation under RCRA Subtitle C. EPA did not include within the scope of the RTC oil- and gas-fired utility wastes, as well as industrial FFC wastes. The study presents EPA's understanding of the generation, management, disposal, and reuse of wastes from coal combustion for electricity generation.

2. Study Factors

The RTC addressed the following eight study factors required under Section 8002(n) of RCRA:

1. Sources and volumes of such materials generated per year,

2. Present disposal and utilization practices,

3. Potential danger, if any, to human health and the environment from the disposal and reuse of such materials,

4. Documented cases in which danger to human health or the environment from surface runoff or leachate has been proved,

5. Alternatives to current disposal methods,

6. Costs of such alternatives,

7. Impact of those alternatives on the use of coal and other natural resources, and

8. Current and potential utilization of such materials.

In preparing the RTC, EPA addressed these eight study factors as they apply

to coal-fired combustion wastes generated by electric utilities. The RTC is divided into six sections that address these factors. The first section provides an overview of the U.S. electric utility industry, including the structure, economic and environmental regulations, and describes the importance of coal to the electric utility industry. The second section examines the amounts and

types of wastes generated. The third section discusses current waste management and disposal practices used by the electric utility industry and possible alternatives to these practices. The fourth section reviews the potential and documented impacts of these wastes on human health and the environment, and the fifth section evaluates costs associated with current waste disposal practices and additional costs that could be incurred under a variety of alternative waste management practices. The final section summarizes the RTC's tentative findings and provides recommendations for a regulatory determination.

3. Preliminary Findings

Using the RTC findings, EPA developed three preliminary recommendations for such wastes. A summary of these recommendations is provided below.

a. Large-volume wastes. The RTC found that while the majority of the materials present in the four large volume wastes-fly ash, bottom ash, boiler slag, and flue dust-are not of major concern (e.g., more than 95 percent of the ash is composed of oxides of silicon, aluminum, iron, and calcium), trace constituents in the wastes, including arsenic, barium, cadmium, chromium, lead, mercury, and selenium, may present risks to human health and the environment. However, the data also indicates that these wastes generally do not exhibit the RCRA hazardous waste characteristics. In particular, a review of the extraction procedure (EP) test data indicated that metals are generally not found in leachate at levels above the hazardous waste toxicity characteristic. Only three [*42468] metals-cadmium, chromium, and arsenic-were detected in any ash or sludge samples above toxicity characteristic levels and then only infrequently.

In addition, the report tentatively concluded that current waste management practices appear to be adequate for protecting human health and the environment. For example, while groundwater monitoring data showed that waste management units can cause releases of pollutants to underlying groundwater, the frequency and magnitude of exceedences of Primary Drinking Water Standards (PDWSs) were found to be relatively low-about 5 percent of all samples showed exceedences of PDWS, with exceedences less than 20 times the applicable standard in all cases. Additionally, human populations generally are not directly exposed to groundwater in the vicinity of coal-fired utility waste management sites; public drinking water intakes are usually at least several kilometers from the sites.

Furthermore, the RTC indicated that as of 1988, coal-fired electric utilities spent about $ 800 million per year for the disposal of coal combustion wastes. If all utility large-volume wastes from coal combustion were regulated as hazardous wastes, the cost of disposal practices, excluding corrective action costs or higher recycling costs, could increase to $ 3.7 billion per year. Costs would approach $ 5 billion annually if all existing facilities were capped and closed and new facilities were constructed with liners, leachate collection systems, flood protection, and groundwater monitoring. Based on these findings, the RTC tentatively concluded that regulation of these wastes under Subtitle C was not warranted.

b. Low-Volume Wastes. The RTC identified a number of wastes other than the

large-volume wastes that are typically generated in lower volumes by coal-fired electric utilities. These "low-volume wastes" include, but are not limited to, boiler blowdown, coal pile runoff, cooling tower blowdown, demineralizer regenerant and rinses, metal and boiler cleaning wastes, pyrites, and sump effluents. The report indicated that several low-volume wastes may exhibit the

hazardous waste characteristics of corrosivity and EP toxicity.

Data in the RTC showed that waste streams produced during equipment maintenance (e.g., boiler chemical cleaning wastes) occasionally exceeded hazardous waste toxicity characteristics for chromium and lead. Boiler chemical cleaning wastes were also, in limited instances, found to exhibit the characteristic of corrosivity. No exceedences of toxicity characteristics were observed for other low-volume wastes, but available data were limited. In addition, the Agency concluded that data on these low-volume wastes that are co-disposed with the four large-volume waste streams were insufficient to determine the potential contribution of particular wastes to environmental risk and that additional study of low-volume wastes was warranted. Because of these findings, the Agency indicated that it was considering removing the exemption for low-volume wastes.

c. Waste utilization. EPA noted in the RTC that waste utilization practices appeared to be conducted in an environmentally safe manner. The Agency encouraged the utilization of coal combustion wastes as one method for reducing the amount of these wastes requiring disposal and supported voluntary efforts by industry to investigate new possibilities for utilizing coal combustion wastes.

4. Public Comment Process

With the publication of the RTC, EPA established a comment period that ended May 16, 1988 (See 53 FR 9976, March 28, 1988). In addition, the Agency held a public hearing on the RTC in Denver, Colorado, on April 26, 1988 (53 FR 14839). A second hearing was scheduled but subsequently cancelled. EPA received 24 sets of written comments prior to the close of the comment period. All individual comments and a transcript from the public hearing are available for public inspection in the RTC docket (Docket No. F-88-PATA-FFFFF). The docket also contains a summary of all the comments presented at the hearing or submitted in writing. EPA's responses to those comments are provided in the docket, as well as in Appendix A to this regulatory determination.

D. Supplemental Analysis and Notice of Data Availability

Supplemental data were collected and analyzed for the large-volume and some low-volume wastes addressed by the RTC. A Notice of Data Availability (Notice), which announced the availability of this information, was published in the Federal Register on February 12, 1993. In the Notice, EPA also made available for comment the proposed methodology to be used in making a final regulatory determination for fly ash, bottom ash, slag, and flue gas emission control wastes. The Agency provided a 45-day public comment period, which closed on March 29, 1993.

The supplemental data provided in the Notice were obtained by EPA from various EPA offices and other Federal agencies, State agencies, and the electric utility industry. In addition, literature searches were performed to identify recently published materials on fly ash, bottom ash, boiler slag, and flue gas emission control waste generated by coal-fired electric utilities. Information

in the Notice included:

Published and unpublished materials obtained from State and Federal agencies, utilities and trade industry groups, and other knowledgeable parties on the volumes and characteristics of fly and bottom ash, slag, and flue gas emission

control waste.

Published and unpublished materials on management practices (including co-disposal and reutilization) associated with fly and bottom ash, slag, and flue gas emission control waste.

Published and unpublished materials on the potential environmental impacts associated with fly and bottom ash, slag, and flue gas emission control waste management.

Published and unpublished materials on trends in utility plant operations that may affect waste volumes and characteristics. Specific information was sought on innovations in scrubber use and the potential impacts of the 1990 Clean Air Act Amendments on waste volumes and characteristics.

Energy Information Agency (EIA), Department of Energy, 1990 data on utility operations and waste generation obtained from EIA's Form 767 database. These data are submitted to EIA annually by electric utilities.

Site visit reports and accompanying facility submittals for five power plants visited by EPA during fall of 1992.

Materials obtained from public files maintained by State regulatory agencies in Virginia, North Dakota, Texas, Indiana, Colorado, Wisconsin, Ohio, and Pennsylvania. These materials focus on waste characterization and environmental monitoring data, along with supporting background information.

EPA received 14 written comments addressing the Notice. All of the comments are available for public inspection in Docket No. F-93-FFCA-FFFFF. EPA's response to the comments are provided in the docket and in Appendix B to this regulatory determination.

II. Scope of the Regulatory Determination

This section describes the wastes that are and are not affected by this [*42469] regulatory determination. The discussion addresses the affected generators, the status of wastes generated from those utilities that co-burn fossil fuels with non-coal fossil fuels or other materials, and the effect of co-management of the four large-volume wastes with low-volume coal combustion wastes on the regulatory status of the large-volume wastes.

The Consent Decree divided the universe of fossil-fuel combustion wastes into two categories: large-volume wastes from coal-fired electric utilities referenced in RCRA Section 3001(b)(3) (fly ash, bottom ash, boiler slag, and flue gas emission control wastes) and "remaining wastes" (these wastes must still be studied according to RCRA Section 8002(n)). Each category has separate schedules for making the regulatory determination. Today's action only affects fly ash, bottom ash, boiler slag, and flue gas emission control waste from coal-fired electric utilities. All remaining wastes are outside the scope of this determination. Because a waste stream which is categorized as a

large-volume waste as generated may become a remaining waste as a result of the manner in which it is managed, this section explains the universe of as-generated and as-managed large-volume wastes affected by today's action.

A. As-Generated Large-Volume Wastes

The universe of wastes affected by this action is limited to the large-volume wastes generated by coal-fired units at steam electric utility power plants in the United States, including independent power producers not engaged in any other industrial activity (this latter group was included because the Agency has no reason to believe that its wastes and practices are any different than those of larger power plants). These wastes are subject to the regulatory determination only when managed separately from other FFC wastes. Further, the population is limited to wastes from those facilities for which coal is almost the sole fossil-fuel feed.

Information on electric utilities collected since publication of the Report to Congress demonstrates that nearly all coal-fired boilers occasionally burn small amounts of natural gas and/or fossil-fuel oil for boiler startup or flame stabilization. While oil ash is a remaining waste outside the scope of today's action, the Agency believes, based on published literature and information collected during site visits, that the burning of oil for startup and flame stabilization results in a de minimis contribution to the total volume of combustion by-products generated by the boiler during normal operations. Similarly, natural gas combustion for boiler startup or flame stabilization results in de minimis ash formation relative to the volume of by-products generated from coal combustion. Accordingly, the total volume of fly ash, bottom ash, slag, and flue gas emission control waste generated by a coal-fired plant that burns oil or natural gas in small quantities for start-up or flame stabilization shall be considered a large-volume waste subject to this determination.

The information collected following publication of the RTC also indicates that some operators occasionally burn materials other than coal in utility boilers, some of which are considered hazardous wastes under RCRA (operators may do so and their residues continue to remain exempt under the Bevill exemption as long as 50 percent of the feed is coal and the residue passes the BIF two-part test if they burn hazardous waste). This practice may be conducted for the purposes of disposal or energy recovery. Wastes from the co-burning of materials were not studied in the RTC, and very limited information regarding their generation, characteristics, and management has been collected to date. The Agency recognizes that the burning of such materials, when practiced in an environmentally sound manner, can be an effective waste management or energy recovery strategy. However, EPA has insufficient data to determine the amount of material burned or the potential influence of burning such materials on the characteristics of the four large-volume wastes. The Agency intends to study the co-burning issue further at a later date, as appropriate. Thus, the large-volume wastes which result from any such burning (with the exception of co-burning with hazardous waste) are outside the scope of this determination. The following paragraph discusses the special case of co-burning hazardous waste and coal.

The residues from those facilities that burn hazardous wastes are subject to the Boiler and Industrial Furnace (BIF) rule under RCRA (40 CFR 266.112). n4 Under the BIF rule, facilities must conduct site-specific sampling and analysis of waste-derived residues to document that hazardous waste burning has not significantly increased concentrations of hazardous constituents in the

residues. Because this testing ensures that such wastes are similar to those studied in the RTC, thus making further study of these wastes unnecessary, residues that pass the test are within the scope of today's regulatory determination.

n4 The 1981 interpretation at footnote 1 above states that the residues from co-burning enjoy the temporary exemption only when the non-coal material in the feed is burned for its fuel value. This condition, however, was removed for co-burners of hazardous waste in the BIF rule (see preamble discussions at 56 FR 7196-7200, Feb. 21, 1991). For the same reasons cited during that rulemaking, and as a matter of consistency, the Agency no longer imposes such a condition when the non-coal material is not a hazardous waste.

Finally, for the purposes of this action, large-volume wastes from coal-fired electric utilities do not include wastes generated from fluidized bed combustion (FBC) boiler units. FBC is a relatively new combustion technology that allows for the removal of sulfur without an end-of-pipe scrubber. The wastes generated by this technology were not studied in the RTC, and only limited information regarding their characteristics and management has been collected to date. The information that is available has not provided EPA with enough evidence to conclude that waste generated from FBC units is substantially similar to conventional boiler wastes. Some sources maintain that FBC units that burn solely coal as a fossil-fuel source generate fly ash and spent bed material that is substantially different from conventional boiler wastes. n5 This is because in FBC, coal is burned in the presence of limestone. The differences in the FBC wastes are defined by a presence of sulfur compounds and high amounts of residual alkalinity. On the other hand, industry representatives believe that the wastes are very similar to the fly ash waste and flue gas emission control wastes studied in the RTC.

n5 United States Environmental Protection Agency, Office of Research and Development, Fluidized-Bed Combustion Technology Overview, EPA-600/7-81-074, April 1981.

The information does indicate that the use of FBC technology in the electric utility industry may be increasing. Because of the current lack of data, the potential of the co-firing of limestone to have a significant effect on the characteristics of the wastes produced, and the potential for increased utilization of the technology, the Agency has decided to defer a decision on these wastes until further information from the growing number of facilities can be examined. Therefore, the Agency considers these wastes "remaining wastes," which are outside the scope of today's regulatory determination.

B. As-Managed Large-Volume Wastes

As described above, large-volume wastes include fly ash, bottom ash, slag, and flue gas emission control wastes [*42470] from coal-fired electric utility boilers. However, the Consent Decree defines large-volume wastes that are "mixed with, co-disposed, co-treated, or otherwise co-managed with other wastes generated in conjunction with the combustion of coal or other fossil-fuels * * *" as remaining wastes. As a result, a waste that may be categorized as large-volume as generated may become a remaining waste by virtue of the circumstances of its management. Remaining wastes are outside the scope of this regulatory determination. (Although these wastes are not covered by today's regulatory determination, these wastes remain exempt from RCRA Subtitle

C until April 1, 1998, at the latest.)

The RTC found that the level of "co-mixing, co-treatment, co-disposal or co-management" practiced at utility waste disposal sites varies considerably. At one extreme, many or most liquid wastes generated at the plant may be handled

along with ash in a single impoundment system. At the other extreme, all large-volume wastes may be discharged to units receiving no other materials of any kind. In practice, most utility disposal sites operate somewhere between these extremes, with large-volume wastes discharged into units receiving certain other materials. Depending on the specific materials commingled in a particular management unit, the resulting mixture may be a remaining waste and hence fall outside of the scope of today's action.

The Agency recognizes that many plant operators use process waters (e.g., non-contact cooling water and low-pressure service water) in ash handling or FGD systems. Because of the continuous use of these process waters, the Agency does not consider them to be wastes. In any event, the use of these process waters as feedwater for emission control systems or for ash transport generally will not increase the environmental risks associated with the wastes relative to the risks derived from utilization of fresh water for the same purposes. Discouraging such practices may lead to an increased usage of fresh water for the same purposes, thereby increasing the total volume of water exposed to the large-volume wastes as well as the total volume of waste generated. The Agency feels that this would be an undesirable outcome of today's action. For these reasons, the Agency does not consider the practice of using these non-contact process waters in ash sluicing systems or as makeup water for FGD systems to constitute co-management. The four large-volume wastes, therefore, that are transported/mixed with these process waters do not become "remaining wastes." Instead, they are within the scope of this Regulatory Determination. These waters are limited to ash hopper seal water, ash hopper cooling water, and other non-contact cooling waters.

The Agency emphasizes that co-management of low-volume wastes and large-volume wastes makes the combined waste stream a remaining waste. Given below is a list of management practices that result in combined waste streams that are remaining wastes. This list, which is not exhaustive, includes those activities observed or believed to occur at operating FFC waste disposal facilities that involve the "mixing, co-treatment, co-disposal, or co-management" of large-volume wastes with low-volume wastes. Remaining wastes as managed include:

Discharge of boiler blowdown to a large-volume waste impoundment,

Discharge of demineralizer regenerant to a large-volume waste impoundment,

Discharge of metal cleaning wastes to a large-volume waste impoundment,

Discharge of boiler chemical cleaning wastes to a large-volume waste impoundment,

Discharge of plant wastewater treatment effluent to a large-volume waste impoundment,

Discharge of coal mill rejects to a large-volume waste impoundment,

Disposal of oil ash in a large-volume waste landfill or impoundment,

Disposal of plant wastewater treatment sludge in a large-volume waste landfill,

Disposal of coal mill rejects in a large-volume waste landfill, and

Reuse of metal cleaning wastewaters in a FGD feedwater system.

EPA recognizes that it may not have provided a clear understanding of what constitutes co-management since offering the 1981 interpretation of the exemption cited above. Therefore, the Agency may propose a definition of co-management in the future. This is important because low-volume wastes are within the Bevill Exemption only if they are co-managed with large volume waste. Low-volume wastes that are independently managed are not and have never been within the scope of the Bevill Exemption. n6

n6 Industry comments on both the RTC and Notice generally agreed with this interpretation.

III. Factors Considered in Making the Regulatory Determination

RCRA, as amended, directs EPA to make a regulatory determination generally based upon the RTC and comments received from interested parties. The statute contains the eight study parameters identified in Section I.C.2., Study Factors. In addition, RCRA Section 8002(n) suggests that EPA review relevant studies and other actions of other Federal and State agencies and invite participation by other concerned parties, including industry and other Federal and State agencies, with a view toward avoiding duplication of effort.

EPA complied with the congressional mandate in developing, in 1988, the required RTC. In conducting this study, EPA relied upon the analysis of the eight study factors noted above. The Agency has expanded the data base through the collection of additional data referenced in the February 12, 1993, Notice. The Notice also made available, in the RCRA docket, the three-step methodology the Agency was considering using in making this regulatory determination. This basic analytical approach was used in making the regulatory determination for mineral processing wastes (56 FR 27300, June 13, 1991). EPA modified the methodology in this case, however, so that it best fit the available information on the nature and management of the coal-fired electric utility wastes at issue in this determination. The method involves answering a series of questions covering the potential hazards of the wastes, the existing management and regulatory controls that affect the hazards that may be presented, and the potential impacts of regulating the wastes as hazardous under RCRA Subtitle C. This approach allows EPA to make a systematic evaluation of the information presented in the RTC and other information collected pursuant to the Notice. EPA has solicited and incorporated comments on the RTC, the data described in the Notice, and the three-step methodology in making today's regulatory determination. EPA believes that this approach is consistent with congressional intent.

EPA received no comments that disagreed with any aspect of the three-step methodology. Therefore, no changes have been made in the approach. The decision process outlined below presents a series of questions and sub-questions that were addressed in the order posed. If the Agency determined the response to Step

1 for a waste to be affirmative (e.g., "Yes, management of this waste does pose human health/environmental problems, or might cause problems in the future"), then the analysis proceeded to Step 2 for the waste and constituent(s) of concern. If, however, the answer to Step 1 was negative, then the analysis [*42471] stopped and the Agency determined that regulation of that waste

under Subtitle C was not warranted. If the analysis proceeded to Step 2 and the response to Step 2 was affirmative (e.g., "Yes, more stringent regulation is necessary and desirable"), analysis then proceeded to Step 3. If the response to Step 2 was negative, however, the analysis stopped and the Agency determined that regulation of that waste under Subtitle C was not warranted. Finally, if the Agency proceeded to Step 3 and found that the consequences of regulating the waste under Subtitle C were substantial and not justified by the risk reduction that could be obtained by Subtitle C regulation, then the Agency would determine that Subtitle C regulation was not warranted. The opposite conclusion to the question posed by Step 3 would result in a determination that regulation of the waste as hazardous under Subtitle C is warranted.

The rationale for the order of questions is that a FFC waste should first be considered to present risk to human health or the environment or a potential risk under plausible mismanagement scenarios before the Agency considers it for regulation under Subtitle C. Second, the Agency should determine that current management practices and existing State and Federal regulatory controls are inadequate to limit the risks posed by a waste, and that Subtitle C regulation would be effective and appropriate, before it considers regulating the waste under Subtitle C. Finally, the special status of the waste requires that the Agency consider the impacts to the industry that regulation under Subtitle C would create in making a decision to regulate the waste as hazardous. The methodology, therefore, allows EPA to systematically narrow its focus to those wastes that do or may present significant risk of harm and for which additional regulatory controls are necessary and desirable.

The discussion below addresses each of the steps and sub-steps in more detail.

Step 1. Does the management of this waste pose human health/environmental problems? Might current practices cause problems in the future?

Critical to the Agency's decision-making process is whether the special waste either has caused or may cause human health or environmental damage. To resolve those issues, EPA has posed the following key questions:

Substep 1. Has the waste, as currently managed, caused documented human health impacts or environmental damage?

Substep 2. Does EPA's analysis indicate that the waste could pose significant risk to human health or the environment at any sites that generate it (or in offsite use), under either current management practices or plausible mismanagement scenarios?

Substep 3. Does the waste exhibit any of the characteristics of hazardous waste?

As described above, the Agency first determined whether each waste may pose human health/environmental problems by examining whether the waste has caused documented human health or environmental damages in the past, whether each

waste, as managed, may pose significant risk to human health or the environment, and whether each waste exhibits any of the characteristics of hazardous waste. If each of the questions in Step 1 resulted in a negative response, no further review would be performed for that waste, and the Agency would determine that regulation under Subtitle C of RCRA is not warranted. However, as with the

Regulatory Determination for Mineral Processing Special Wastes (56 FR 27305, June 13, 1991), an affirmative response to any one of the three sub-questions above did not necessarily trigger further analysis under Step 2 of the methodology. Rather, the Agency answered each of the three questions separately and then considered the combined responses as a whole in deciding whether further evaluation was necessary. In that consideration, the certainty and weight of evidence supporting an affirmative response to one question was taken into account in the Agency's decision to proceed to Step 2. If the Agency determined that additional review was warranted for a particular waste, additional review under Step 2 was limited to those waste characteristics or waste management practices for which significant potential for risk was identified in Step 1.

The first question the Agency addressed under Step 1 was whether coal combustion waste has caused documented human health impacts or environmental damage. To determine this, the Agency first considered existing damage case information presented in the RTC. EPA examined additional damage case information to determine whether there was further evidence of negative impacts to human health or the environment. The Agency requires that each relevant case satisfy at least one of the following three conditions: scientific investigation concluding that damages occurred, administrative ruling concluding that damages occurred, or court decision or out-of-court settlement concluding that damages occurred. Ideally, damages would clearly be the result of the large-volume coal combustion wastes.

In the Agency's analysis, damage to human health or the environment was considered as follows: Threat to human health included both acute and chronic effects (e.g., exceedences of primary drinking water standards, directly observed health effects, such as elevated blood contaminant levels or loss of life) associated with management of coal-fired electric utility wastes, while danger to the environment included: (1) Impairment of natural resources (e.g., contamination of any source of drinking water reasonably expected to be used), (2) ecological effects resulting in impairment of the structure or function of natural ecosystems and habitats, and (3) effects on wildlife resulting in impairment of terrestrial or aquatic fauna (e.g., reduction in species diversity or density, impairment of reproduction).

To address the second question-"could the waste pose significant risk to human health and the environment under either current management practices or plausible mismanagement scenarios, the Agency performed a two-part assessment of the potential for risk presented by the waste.

First, the Agency conducted a risk screen of intrinsic hazard of the wastes, comparing waste characterization data with conservative screening criteria developed for four exposure pathways: groundwater, surface water, inhalation, and ingestion. The purpose of the risk screen was to identify the waste constituents and exposure pathways that have the potential to present threats to human health and the environment. Exceedences of the screening criteria indicate the need for further study, but do not in themselves demonstrate that the wastes pose a significant hazard.

Second, for each waste constituent found to exceed the screening criteria, the Agency evaluated the potential for release, transport, and exposure of that constituent for specific pathways. The three exposure pathways evaluated for human health risk were groundwater ingestion, particulate inhalation, and soil

ingestion. The fourth pathway, surface water, was evaluated for ecological risk. The Agency solicited comment in the Notice on excluding from consideration another pathway, radiation exposure, because of insufficient information to perform the required analysis. No comments or supplemental data were received regarding the proposed exclusion. Therefore, EPA did not consider radiation exposure in the analysis. [*42472]

To address the third question of Step 1, the Agency reviewed available waste characterization data to determine whether fly and bottom ash, slag, and FGD sludge exhibit any of the hazardous characteristics. In evaluating toxicity data, the Agency considered both Extraction Procedure (EP) and Toxicity Characteristic Leaching Procedure (TCLP) data, since much of the currently available data on toxicity predates the use of the TCLP.

Several commenters on the RTC claimed that the EP toxicity test is not a valid indication of hazards associated with utility wastes since the test was designed to mimic conditions in acidic municipal landfills rather than homogeneous monofills used by electric utilities. Those commenters concluded that data from the EP test significantly overstate potential risks.

As discussed further in Appendix A to this preamble, EPA has developed the methodology to take into account the eight study factors (Section 8002(n)) set forth in the Bevill Exemption to determine whether hazardous waste regulation is warranted for FFC wastes. While waste characterization data, including both the results of EP toxicity testing and those of other leaching procedures (TCLP, ASTM, etc.), are considered in the decision, they are not the sole basis for determining whether to regulate fossil-fuel combustion wastes under RCRA Subtitle C. The methodology focuses on the risks posed by fossil-fuel combustion wastes as managed (and some ash is currently managed in Subtitle D landfills). EPA therefore believes that consideration of EP toxicity data, in conjunction with the results of other leaching studies and data on the actual environmental impacts of waste management practices, is appropriate.

EPA received limited additional data from commenters to the Notice. The few EP and TCLP results provided were consistent with other samples collected for the purposes of the RTC and the Notice. None of the additional data supplied during the comment period exceeded the hazardous waste criteria.

Step 2. Is more stringent regulation necessary or desirable?

If the Agency determined in Step 1 that the management of fly or bottom ash, slag, or FGD sludge from coal-fired utilities has caused or may potentially cause human health or environmental impacts, then the Agency would proceed to Step 2. In evaluating the need for more stringent controls to address the potential risks associated with the management of these wastes, EPA asked the following questions:

1. Are current practices adequate to limit contaminant release and associated risk?

2. Are current Federal and State regulatory controls adequate to address the management of the wastes?

3. Will Subtitle C effectively address problems associated with the waste without imposing significant unnecessary controls that are inconsistent with

the special status of the waste?

In Step 2, the Agency looked at waste management practices and existing regulations to examine the potential for release and exposure under current practices. If current management practices or existing regulatory controls were found to be adequate or if Subtitle C was found to be an ineffective or inappropriate regulatory alternative, then the Agency would determine that the waste should not be regulated under Subtitle C. If, on the other hand, current practices or existing regulatory controls were found to be inadequate in controlling potential and actual risks and if Subtitle C would be effective, the Agency would proceed to Step 3.

Step 3. What would be the operational and economic consequences of a decision to regulate a special waste under Subtitle C?

If, based upon the previous two steps, the Agency found that a waste presents significant risk despite current management practices and existing regulatory controls and that Subtitle C regulation would be effective and appropriate in reducing those risks without imposing unnecessary controls, the Agency would then evaluate the costs and impacts associated with regulating this waste under Subtitle C and, possibly, other regulatory scenarios. Costs and impacts would be evaluated in terms of the estimated affected population of generators, the ability of generators to pass on costs of compliance to customers or suppliers, the effect of regulation on domestic energy supply and capacity, and the effect of regulation on beneficial use of the affected waste.

With cases in which the Subtitle C scenarios would impose widespread and significant impacts on facilities, reduce domestic capacity or supply, and/or deter safe and beneficial use of the waste, EPA might conclude that regulation under Subtitle C is inappropriate. However, EPA might determine that regulation of the waste under Subtitle C is warranted if, in the Agency's judgement, the reduction in risk that would result from such regulation would justify the operational and economic consequences to the industry and the economy as a whole. The Agency invited commenters to the Notice to submit information regarding cost data.

IV. Regulatory Determination for Four Large-Volume Coal-Fired Utility Wastes

The following discussion presents EPA's conclusions regarding the regulatory status of large-volume coal-fired utility wastes under RCRA. The determination as to whether regulation of such wastes under Subtitle C is warranted is based upon the February 1988 Report to Congress, comments on the Report to Congress including comments received at the public hearing held in Denver on April 26, 1988, the information collected for the February 12, 1988, Notice, and comments received on the Notice.

Based on all of the available information, EPA has concluded that regulation of the four large-volume fossil-fuel combustion wastes as hazardous waste under RCRA Subtitle C is unwarranted. Below are the Agency's responses to each step of the decision methodology.

Step 1. Does the management of this waste pose human health/environmental problems? Might current practices cause problems in the future? The Agency has determined that the answer to this question is yes.

Substep 1. Has the waste, as currently managed, caused documented human health impacts or environmental damage?

Response: The Agency has determined that the waste has caused documented impacts, but at a very limited number of sites.

In accordance with the methodology described above, EPA first addressed whether the management of this waste currently poses human health/environmental problems and whether current practices could cause problems in the future. In its examination of potential/actual cases in which danger to human health or the environment could be attributed to the management of fossil-fuel combustion wastes, the RTC included information from several studies that documented occasional exceedences of primary and secondary drinking water standards in groundwater underlying fossil-fuel waste management sites. To supplement the RTC data, EPA conducted State file reviews in States selected for their geographical representation and large coal-fired electricity generation capacity. Overall, both efforts indicate that the extent of actual damage cases/environmental harm associated with large volume FFC waste management appears limited. [*42473]

EPA used the "test of proof" developed to support the Report to Congress on Mineral Processing Wastes to evaluate the potential damage cases. As described in Chapter 2 of that report, the test of proof requires that a case satisfy at least one of three conditions: scientific investigation concluding that damages occurred, administrative ruling concluding that damages occurred, or court decision or out-of-court settlement concluding that damages occurred. For the six damage cases described below, scientific investigation was the measure of proof satisfied, since the data most supported application of this measure.

In applying the test, EPA first considered whether actual documentation exists that shows that human health or environmental harm occurred (e.g., contaminated groundwater in a water supply well, observed impacts on wildlife). Only a limited number of large-volume FFC waste management sites actually meet this criterion and can be considered proven damage cases. These cases include the two sites identified in the RTC, as well as four additional sites identified during recent data collection efforts. EPA notes that of these six cases, only one case can clearly be attributed to fly ash management alone. The remaining five cases are associated with the co-management of the large-volume wastes with other wastes. Because co-management of large and low-volume wastes is the predominant waste management practice, limited information exists on independently managed large-volume wastes.

The RTC described a site that involved a dike failure that caused an accidental release from a fly ash disposal lagoon to a river. This case resulted in substantial damage to river organisms. The other case described in the RTC involved co-management. In this case, a release occurred from a fly ash and petroleum coke waste disposal site that resulted in the contamination of drinking water wells with selenium and vanadium. This site is ranked on the CERCLA (Superfund) National Priority List Site.

EPA's more recent data collection efforts resulted in the identification of

four additional sites that are considered proven cases of damage (see the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion Waste, found in Docket no. F-93-FFCA-FFFFF) Each case involves co-management of wastes at older, unlined waste management units. These incidents involved groundwater contamination and/or vegetative

damages due to releases from waste management units.

In summary, there is minimal documentation of impacts on drinking water sources in the vicinity of coal-fired utilities. In addition, it is important to note that the damage case sites were chosen for study because of known releases and cannot necessarily be extrapolated to the general universe. Also, most releases have been from unlined units at older sites that in many States are now subject to more stringent design and operating criteria. n7 Furthermore, actual cases of harm to human health or the environment may be limited to a few sites, often with other contributing factors, including additional pollutant sources attributed to the co-management with other FFC and non-FFC wastes. The review of such cases of co-management will be reserved for the "remaining waste" study.

n7 The percentage of units required to meet more stringent design and operating criteria will increase as older units reach capacity (assuming a typical lifetime fo 15 years) and new units come on-line (and are subject to these more stringent requirements).

The FFC waste damage case/environmental data collected to date indicate, therefore, that although the extent appears limited, damage to the environment has occurred. Although the releases are often confined to the vicinity of the units and have not reached environmental/human receptors, the potential for exposure necessitates further analysis in Substep 2, which examines the potential risks posed by these wastes.

Substep 2. Does EPA's analysis indicate that the waste could pose significant risk to human health or the environment at any sites that generate coal combustion wastes, under either current management practices or plausible mismanagement scenarios?

Responses: Groundwater contamination and surface water contamination through groundwater recharge are possible under some plausible conditions (unlined units). Available information on the environmental conditions of the sites indicates ecological and natural resource damages are of most concern, because potential for human exposure is limited.

The RTC contains considerable information on the four large-volume coal combustion wastes (fly ash, bottom ash, slag, and flue gas desulfurization (FGD) sludge). Information includes waste characteristics and management practices, environmental factors affecting human exposure potential at disposal sites, and evidence of ecological damage at coal combustion sites. In addition, EPA collected supplemental information from various EPA offices and other Federal agencies, State agencies, and the electric utility industry on waste characterization, management, and potential impacts. This supplemental information included groundwater monitoring data for 43 coal combustion waste sites collected from State regulatory agencies and from EPA site visit reports. All data used in this supplemental analysis are available for public inspection in the docket No. F-93-FFCA-FFFFF. A bibliography of the sources used in the risk analysis is found in Appendix A of the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion

Waste, also found in Docket no. F-93-FFCA-FFFFF.

The first step of the methodology was to evaluate constituents of concern (identified by waste characterization data) using a risk screen. A risk screen analysis is a process which applies a conservative and simplified methodology

to the constituents and pathways to determine if they are of concern. The risk screen compared waste characterization data with screening-level criteria. The screening criteria were developed to identify wastes, constituents, and pathways requiring further analysis; that is, wastes captured by the screen may or may not be of concern. Criteria for 23 constituents (primarily metals) were developed for groundwater, surface water, ingestion, and inhalation exposure pathways using a methodology similar to that used in the mineral processing regulatory determination. (In the cases where the Agency regulatory levels had changed since the mineral processing RTC, the screening criteria were also updated.)

Groundwater exposure criteria were developed using the MCLs set by the Agency to protect drinking water. If no primary MCL had been established for a particular parameter, then a health-based level (HBL) was calculated using Agency cancer slope factors or non-cancer reference doses (RfDs) from IRIS. n8 In instances where the calculated HBL was less than corresponding MCL, both values were considered in the screening.

n8 U.S. Environmental Protection Agency. Integrated Risk Information System (IRIS). (IRIS, November 1992 update).

Screening criteria based on primary MCLs were derived by multiplying the MCL by a factor of 10 to simulate scenarios where only limited dilution of waste leachate occurs prior to exposure. HBLs were derived from IRIS n9 drinking [*42474] water or oral cancer slope factors (CSFs) representing a lx10 sup - lifetime cancer risk, or RfDs. Calculation of the HBLs relied on the following conservative assumptions: the maximally exposed 70 kg individual drinking 2 liters of water per day, 365 days per year, for a lifetime duration of 70 years. (The 70-year exposure duration was chosen to maintain comparability with the MCLs; this approach is consistent with that taken in the mineral processing regulatory determination.) These assumptions yield the following general equations:

HBLsub CSF (mg/l) = (1x10 sup -)(70 y)(70 kg)/ open brace (CSF (mg/kg/d) sup -)(2 l/d)(70 y) close brace

HBsub RfD (mg/l) = (RfD mg/kg/day)(70 kg)/(2 l/day)

As with the MCL-based criteria, the HBLs were multiplied by a factor of 10 to simulate a scenario where only limited dilution of waste leachate occurs prior to exposure. Groundwater exposure criteria were compared with waste EP Toxicity and TCLP analysis results for each of the four waste steams.

n9 Ibid.

The surface water exposure criteria were selected to represent potential harm to aquatic organisms exposed to surface water releases of wastes or waste leachate. The criteria were derived by multiplying the freshwater chronic Ambient Water Quality Criteria (AWQC) for non-human effects by a factor of 100 to simulate a scenario where only limited dilution occurs. Surface water

exposure criteria were compared with waste EP Toxicity and TCLP analysis results for the four waste streams.

The ingestion screening criteria were derived from IRIS oral RfDs and oral CSFs, assuming incidental ingestion of solid waste materials. Exposure

assumptions are an ingestion rate of 200 mg/day from ages 1 to 6, and 100 mg/day from ages 7 to 31 (resulting in an average of 0.114 g soil/day), an adult receptor weight of 70 kg and an exposure of 350 days/year for 30 years. For CSF-derived values, a life-time averaging 70 years was assumed. These assumptions were then used to calculate the concentration of a constituent in a waste that would result in an exposure equivalent to the RfD or the concentration corresponding to a lifetime cancer risk of 1x10 sup -. The equations for RfD- and CSF-based criteria are shown below.

Criterionsub RfD (mg/g) = RfD (mg/kg/d) open brace (70 kg)(365 d/y)(30 y) close brace / open brace (350 d/y)(30 y)(0.114 g soil/d) close brace

Criterionsub CSF (mg/g) = open brace 10 sup -/CSF (mg/kg/d) sup - close brace (70 kg)(365 d/y)(70 y) close brace / open brace (350 d/y)(30 y)(0.114 g soil/d) close brace

No dilution factor was employed in deriving the criteria for solid samples. The exposure pathway assumes exposure to particulate whole waste material. Ingestion exposure criteria were compared with waste total constituent analysis results for the four waste steams.

The exposure assumptions used in deriving inhalation exposure criteria include: 50 mu g/m3 airborne dust concentration; n10 adult inhalation volume of 20 m sup 3/d; 70 kg body weight; exposure frequency of 350 days per year; exposure duration of 30 years; and, for CSF-derived values, 70 year lifespan (or averaging time) and 1x10 sup - risk of cancer. Note that 50 mu g/m sup 3 1x20 m sup 3/d results in a soil exposure rate of 1 mg/d. The equations used to derive the criteria from both inhalation RfDs and inhalation CSFs are shown below:

Criteriasub RfD (mg/g) = RfD (mg/kg/d) open brace (70 kg)(365 d/y)(30 y) close brace / open brace (350 d/y)(30 y)(0.001 g soil/d) close brace

Criteriasub CSF (mg/g) = open brace 1x10 sup -/CSF (mg/kg/d) sup - close brace open brace (70 kg)(365 d/y)(70 y) close brace / open brace (350 d/y)(30 y)(0.001 g soil/d) close brace

Again; no dilution factor was employed in deriving the criteria for solid samples. The exposure pathway assumes exposure to particulate whole waste material. Inhalation exposure criteria were compared with waste total constituent analysis results for the four waste steams.

n10 50 mu g/m3 is the National Ambient Air Quality Standard for annual exposure to particulates.

The screening criteria described above were then compared to EP, TCLP, and total constituent data from the RTC and subsequent data collection efforts. For all waste constituents that exceeded a screening-level criterion at more than 10 percent of the sites sampled, or exceeded the criteria by more than a factor of 10, further analysis was conducted. A summary of screening criteria exceedences, reported by waste type and by exposure pathway, can be found in Appendix C of

the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion Waste.

The results of the risk screening suggest that of the large-volume wastes, fly ash and FGD sludge are of most concern. The risk screen also identified

groundwater, surface water, and inhalation as exposure pathways needing further analysis. The constituents needing further analysis included arsenic, cadmium, chromium, lead, mercury, nickel, Ph, selenium, and silver.

The Agency then evaluated the release, transport, and exposure potential of those constituents, wastes, and pathways for which the risk screen indicated that further analysis was necessary. When available, monitoring data were used to determine the potential for human and environmental exposure. In other cases, information on the physical setting of coal combustion waste sites and on the waste management practices was used to evaluate exposure potential. In the case of the inhalation pathway, the potential for human health risk was evaluated using an atmospheric fate and transport model. For the inhalation pathway, the potential for human health risk, when evaluated using an atmospheric fate and transport model, was found to be negligible. For more information on the air pathway analysis, please consult the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion Waste. Further analyses of the groundwater and surface water pathway are summarized below.

Groundwater monitoring data were used in both the groundwater and surface water exposure pathway analyses. A summary table of the groundwater monitoring sites is in Appendix D of the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion Waste found in the docket. When interpreting the groundwater monitoring data, the Agency took several factors into account.

First, many of the sites may have co-managed their coal combustion wastes with other wastes, such as boiler cleaning solution or pyrites. The extent to which these other wastes may have contributed to groundwater contamination could not be conclusively determined, because it was difficult to assess in many cases whether co-management had occurred and without this information, it was not possible to separate the effects of the large-volume wastes from the other wastes. However, at least two site operators asserted that they believed that co-managed wastes, and not the large-volume wastes, were the cause of groundwater contamination. The Agency took the presence of co-managed wastes into account when evaluating the risk from the large-volume coal combustion wastes.

Second, some of the sites have other possible sources of contamination nearby. To the extent that they can be determined, these sources are noted in the summary table referenced above. Finally, in the case of some contaminants (e.g., iron), naturally occurring levels may be quite high. Again, to the extent that naturally occurring constituents can be [*42475] determined to be adding to downgradient concentrations, this is noted in the summary table.

With these considerations in mind, the Agency determined that available data from coal combustion waste landfills and surface impoundments demonstrated the existence of potential for human exposure to groundwater contamination, because coal combustion waste constituents identified in the risk screen as needing further study were found to be leaching onsite in excess of the primary MCLs.

Subsequent analyses of coal combustion waste sites suggest, however, that potential for actual human exposure is very limited.

For example, nine sites of the forty-nine sites with groundwater monitoring data had contaminants above the MCL that appeared to stem from coal combustion

units. (Another ten sites had upgradient concentrations equal to downgradient concentrations, other possible sources of groundwater contamination, or (in two cases) a lack of upgradient information, preventing any conclusions about the effects of the coal combustion units on groundwater contamination.) Constituents with exceedences include arsenic, barium, cadmium, chromium, fluoride, lead, mercury, nickel, and selenium. Of the nine sites, none were completely lined, although one site had a clay-lined disposal unit with an under-drain emptying into a series of unlined ponds. All nine sites have older (pre-1975) units, four consisting of surface impoundments, four consisting of landfills, and one with both types of units. Fly ash was the principal waste disposed of in all units. Four sites of the nine also are known to have accepted co-managed wastes (pyrites, boiler cleaning wastes, demineralizer regenerant, oil ash, etc.), and the others may have as well.

Potential for human exposure to groundwater contaminants from coal combustion wastes is limited because of the location of most coal combustion sites. Based on a random study (found in the RTC) of one hundred sites, only 29 percent of the sites have any population within 1 kilometer, and only 34 percent of the sites have public drinking water systems within 5 kilometers. Although infiltration and transportation of contaminants in groundwater varies with site- or regional-specific factors (such as depth to groundwater, hydraulic conductivity, soil type, and net recharge), exposure to coal combustion waste groundwater contaminants 5 kilometers from the source of contamination is not expected to occur. Of the public drinking water systems within 5 kilometers of coal combustion waste sites, just under half (47 percent) are expected to treat the groundwater for hardness (i.e., these systems have groundwater with over 240 ppm CaCOsub 3), which would tend to remove co-contaminant metals as well.

Coal combustion units also tend to be near surface water bodies. The same RTC study revealed that 58 percent of the sites are within 500 meters of a surface water body. The volume and flow rate of surface water would tend to dilute and divert the contaminant plume.

In addition, groundwater contamination appears to be attributable to past management practices. As the Agency's groundwater monitoring data outlines above, all of the nine sites with a clear indication of groundwater contamination are older (pre-1975), unlined units. (In contrast, of the 13 lined sites, only one had exceedences of an MCL, and that site had equal concentrations upgradient and downgradient.)

Finally, some of the groundwater contamination may be attributable to co-management with other wastes, such as pyrites, boiler cleaning waste, and demineralizer regenerant. Because of the prevalence of co-management (several public comments on the RTC reported that the predominant industry practice is to co-dispose of low-volume wastes in ash or flue gas emission control waste ponds), the large-volume waste may not be the sole contributor to the groundwater contamination. Two of the nine sites report that co-management is the cause of the contamination.

In conclusion, hazardous constituents in coal combustion waste (particularly

in fly ash and flue gas emission control waste) have the potential to leach into groundwater under certain conditions. Contaminants of concern include arsenic, cadmium, chromium, lead, mercury, and selenium. Available data suggest, however, that contamination stems from older, unlined units representing past practices, and that the units are not typically located near populations and drinking

water systems. In addition, the sites within 5 kilometers of public drinking water systems, about half have groundwater with over 240 ppm CaCosub 3 and are therefore expected to treat the water for hardness, thus removing co-contaminant metals as well. Furthermore, at least some of the groundwater contamination is attributable to other wastes managed with the large-volume coal combustion wastes. Thus, potential for human exposure solely from the large-volume coal combustion waste from current management practices is limited.

An examination of the surface water pathway reveals that, although direct discharge of untreated coal combustion waste to surface water is not likely because of Clean Water Act controls, a few of the coal combustion waste constituents have the potential in some instances, to affect nearby vegetation and aquatic organisms by migration through shallow groundwater to nearby surface waters. This was observed at one site where migration of boron to a nearby wetland was determined by the State to be the cause of vegetative damage. In many cases, natural attenuation processes are expected to dilute the contaminants below levels of concern. For example, if contaminants reach surface waters, the volume of surface water and its high flow rate could dilute the contaminants. For those sites whose nearby water bodies may have a low flow rate (e.g., lakes, swamps, or marshes), however, coal combustion waste may cause local environmental damages, as was observed at the above site.

Even when contaminated groundwater does not affect human health and the environment, it may be considered to have caused impacts that limit future use of that groundwater. In particular, available data suggest that the groundwater at a number of coal combustion waste sites is contaminated above secondary MCLs (SMCLs) by such secondary parameters as iron, manganese, sulfate, and total dissolved solids, although these effects may be localized through dilution and attenuation. The SMCLs are guidelines generally set to be protective of such aesthetic considerations as taste, odor, potential to stain laundry, and human cosmetic effects such as tooth and skin staining.

In addition to being disposed of in landfills and surface impoundments, coal combustion ash is often beneficially used both onsite and offsite. EPA continues to encourage the beneficial use of coal combustion wastes. Because most offsite applications tend to immobilize the coal combustion waste (e.g., fly ash used to make concrete), adverse impacts appear to be unlikely. However, if fly ash is applied directly to agricultural soil, there is some concern with metals uptake by food crops and cattle feed. In addition, boron in the coal ash is readily mobilized and has a phytotoxic effect on plants. Although coal ash is not frequently used in agriculture, any [*42476] agricultural use of coal combustion waste should be carefully evaluated. n11

n11 Characterization of Coal Creek Station Fly Ash for Utilization Potential, Energy and Environmental Research Center, February 1993 (see Docket No. F-93-FFCA-FFFFF).

Substep 3: Does the waste exhibit any of the characteristics of hazardous waste?

Response: The Agency has determined that these wastes exhibit the characteristics of hazardous waste infrequently, from 0 to 7 percent of the samples depending on waste type.

The RTC concludes that although coal combustion waste may leach contaminants (arsenic, cadmium, chromium, lead, and mercury) above toxicity characteristic regulatory levels, such exceedences are infrequent and the average concentrations of constituents are below characteristically toxic levels. A full bibliography of the sources of EP and TCLP data and a summary of the results are given in Appendices A and B of the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion Waste.

The results of Step 1 of the analysis indicate that the wastes rarely exhibit any characteristics of hazardous waste and the waste pose very limited risk to human health or the environment under certain scenarios, such as unlined units sited over shallow groundwater with nearby drinking water wells. Furthermore, since most releases have occurred at unlined older sites, EPA recognized that a review of current waste management practices and regulatory control governing these practices was appropriate as outlined in Step 2 of the methodology, which assesses the need for more stringent regulation.

Step 2: Is more stringent regulation necessary or desirable? The Agency has determined that the answer is no. EPA regulation is not necessary or desirable.

In evaluating the need for more stringent controls to address the potential risks associated with the management of these wastes, EPA first evaluated the adequacy of current industry waste management practices in limiting contaminant release and associated risk. The Agency then viewed the adequacy of current State and Federal regulatory controls addressing these wastes. For the purposes of this analysis, EPA supplemented the data supplied in the RTC with site visits, a 1992 EPA study under which the Agency obtained and reviewed State regulations applicable to FFC waste management, the Department of Energy's 1991 report entitled Coal Combustion Waste Disposal: Update of State Regulations and Cost Data, dialogue with industry and State representatives, the Electric Power Research Institute's Facility Design and Installation Manual (1991), State file searches, and literature reviews.

Substep 1. Are current practices adequate to limit contaminant release and associated risk?

Response: The Agency has determined that industry practices are moving toward increased use of control measures (liners, covers, etc.) and groundwater monitoring.

The Agency's data on current practices indicate that industry is moving toward an increased use of control measures (e.g., liners, covers) and groundwater monitoring. For example, the RTC noted that before 1975, less than 20 percent of units (surface impoundments and landfills) in the United States for which data were available had installed some form of liner. More recent data (EEI's Power Statistics Database, 1989) suggest that 13 to 29 percent of surface impoundments for which data are available, have some form of liner and that 41 to 43 percent of landfills have some form of liner. As the damage case and groundwater monitoring information suggests, most of the releases have occurred at older, unlined units. EPA has observed during site visits that newer units

are generally lined. Furthermore, most newer utility waste management facilities have groundwater monitoring systems, and many also have leachate collection systems. Despite the positive trends in management of FFC wastes, some of these units may be sited with inadequate controls. Therefore, in addition to viewing industry management practices, EPA collected and evaluated information on the

extent of current State and Federal regulation of coal-fired utility waste management.

Substep 2. Are current Federal and State regulatory controls adequate to address the management of the waste?

Response: Effluent limitations in the Clean Water Act regulations for steam electric power plants under 40 CFR part 423 require no discharge from new fly ash ponds. State programs are generally adequate and are improving, with most States now requiring permits and minimum design and operating criteria that would address likely risks. Additionally, Federal authorities exist to address site-specific problems posing threats to human health and the environment under RCRA Section 7003 and CERCLA Sections 104 and 106.

The RTC included information on coal-fired electric utility waste regulation in all 50 States. In updating this information, EPA conducted a review of States that were selected according to the high levels of ash generated in those States. This approach resulted in a study universe of 17 States that generate approximately 70 percent of all coal ash in the United States.

The data show that States have generally implemented more stringent regulations for FFC waste since 1983 (when the State regulation review was conducted for the RTC). Under developing State industrial solid waste management programs, coal-fired utilities are more frequently being required to meet waste testing standards, and waste management units often must comply with design and operating requirements (e.g., liners and groundwater monitoring standards).

Of the 17 States for which EPA updated the RTC data, 14 regulate coal-fired utility wastes as solid wastes, explicitly exempting them from hazardous waste regulation; n12 16 States require offsite FFC waste management units to have some type of operating permit, with design and operating criteria varying by State; 12 have mandatory liner requirements, while three States provide for discretionary authority to impose liner requirements on a site-specific basis; 12 impose mandatory groundwater monitoring requirements on FFC waste disposal sites; and 16 impose final cover requirements. In addition, some States have been working to reduce the threat of groundwater and surface water contamination, by discouraging the use of wet management in ponds as a disposal practice (through permitting requirements and location restrictions). On the Federal level, National Pollutant Discharge Elimination System permits under the Clean Water Act regulate all direct discharges to surface water. Effluent limitations under 40 CFR part 423 govern steam electric power generating point sources and require no (zero) discharge to surface waters from new source fly ash transport waters (40 CFR 423.15(g)).

n12 Of the remaining three States, two States establish requirements based on waste characteristics and one exempts these wastes from their solid and hazardous waste management program.

Considering industry's trend toward more protective waste management practices, the fact that State regulatory programs are generally adequate, and

because Federal authorities exist that can address these wastes, EPA has concluded that current management practices and regulatory controls are adequate for managing the four large-volume FFC wastes. [*42477]

Substep 3. Would Subtitle C effectively address the problems associated with the waste without imposing significant unnecessary controls?

Response: The Agency has determined that it is unlikely that Subtitle C would effectively address the problems associated with the four large-volume fossil-fuel combustion wastes without imposing unnecessary controls.

After reviewing industry practices and current State and Federal regulation, EPA reviewed the alternative scenario of regulating the four large-volume FFC wastes under Subtitle C. First, it was recognized that coal combustion wastes rarely exceed the RCRA characteristics for hazardous waste, and therefore, that most coal combustion wastes would not be subject to Subtitle C controls unless they were listed as hazardous wastes. Furthermore, it was noted that even if these wastes were listed as hazardous, and therefore, regulated under Subtitle C, such an approach would be inappropriate for these wastes. A Subtitle C system would require coal combustion units to obtain a Subtitle C permit (which would unnecessarily duplicate existing State requirements) and would establish a series of waste unit design and operating requirements for these wastes, which would generally be in excess of requirements to protect human health and the environment. For example, if such wastes were placed in the Subtitle C universe, all ash disposal units would be required to meet specific liner and monitoring requirements. Since FFC sites vary widely in terms of topographical, geological, climatological, and hydrological characteristics (e.g., depth to groundwater, annual rainfall, distance to drinking water sources, soil type) and the wastes' potential to leach into the groundwater and travel to exposure points is linked to such factors, it is more appropriate for individual States to have the flexibility necessary to tailor specific controls to the site or region specific risks posed by these wastes.

EPA also reviewed the comments received in response to the 1988 RTC and the Notice. Comments received on the RTC showed unanimous support for EPA's initial recommendation that large-volume combustion wastes do not warrant regulation under RCRA Subtitle C. Specifically, the commenters felt that current Subtitle D criteria, together with existing State regulations, have proved adequate to protect human health and the environment. Furthermore, of the respondents to the Notice who addressed the recommendation that large-volume combustion wastes do not warrant regulation under Subtitle C, all agreed that the supplemental data support this recommendation.

For these reasons, EPA concludes that Subtitle C is inappropriate to address the problems associated with these wastes and that the site or region specific State approach is appropriate for addressing the limited human health and environmental risks involved with the disposal of FFC wastes. The Agency encourages States to continue to develop and implement site-specific approaches to these wastes. EPA believes that industry and the States should continue to review the appropriate management of these wastes. EPA will also consider these wastes during the Agency's ongoing assessment of industrial non-hazardous wastes under RCRA Subtitle D. Should the characteristics of the waste streams change as a result of implementation of any provisions of the Clean Air Act as amended in 1990, the Agency may choose to reexamine the exemption.

Step 3. What would be the operational and economic consequences of a decision to regulate a special waste under Subtitle C?

Although the analysis never reached this point, EPA's preliminary examination of potential costs under Subtitle C indicates that annual costs of full Subtitle C controls would range between $ 100 and $ 500 million per year. This assumes that these wastes would be listed as hazardous in RCRA part 261, subpart D. However, if these wastes were not listed, the wastes would often not be subject to Subtitle C, since they rarely test characteristically hazardous pursuant to part 261, subpart C. Subtitle C controls include groundwater monitoring, liners, leachate collection, closure/covers, dust control, financial assurance, location restrictions, and corrective action.

V. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) of 1980 (Pub.L. 96-354), requires Federal regulatory agencies to consider the impact of rulemaking on "small entities." If a rulemaking will have a significant impact on small entities, agencies must consider regulatory alternatives that minimize economic impact.

Today's decision does not affect any small entity. Rather, it continues to exempt the four large-volume wastes from coal-fired electric utilities from regulation as hazardous wastes. Accordingly, this action will not add any economic burdens to any affected entities, small or large. Therefore, a regulatory flexibility analysis is not required. Pursuant to Section 605(b) of the RFA, 5 U.S.C. 605(b), the Administrator certifies that this rule will not have a significant impact on small entities.

VI. Regulatory Determination Docket

Documents related to this regulatory determination are available for inspection at the docket.

The EPA RCRA docket is located at the following address: United States Environmental Protection Agency, EPA RCRA Docket, room M2427, 401 M Street SW., Washington, DC 20460.

The docket is open from 9 a.m. to 4 p.m., Monday through Friday, except for Federal holidays. The public must make an appointment to review docket materials. Call the docket clerk at (202) 260-9327 to make an appointment.

Dated: August 2, 1993.

Carol M. Browner,

Administrator.

Appendix A-Analysis of and Responses to Public Comments on the Report to Congress

The 1988 Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants concluded with three recommendations. Comments on the RTC were largely organized in response to those recommendations. The summarized

comments and EPA's response to those comments follow each recommendation, printed in bold below.

(1) EPA has concluded that coal combustion waste streams generally do not exhibit hazardous characteristics under current RCRA regulations. EPA does not

intend to regulate under Subtitle C fly ash, bottom ash, boiler slag, and flue gas emission control wastes.

All respondents agreed with and supported the RTC's first recommendation that high-volume combustion wastes do not warrant regulation under Subtitle C. They concluded that current Subtitle D criteria, together with existing State regulations, have proved adequate to protect human health and the environment.

Several commenters claimed that the EP toxicity test is not a valid indication of the hazards associated with utility wastes since the test was designed to mimic conditions in acidic municipal landfills rather than homogeneous monofills used by electric utilities. They claim, therefore, that data from the EP test significantly overstate potential risks.

As noted in the RTC and by several commenters, the Bevill Exemption requires EPA to consider eight factors (Section 8002(n)) in determining [*42478] whether hazardous waste regulation is warranted for fossil-fuel combustion wastes. To that end, EPA has developed the methodology identified in the Notice that takes into account all of these factors. While waste characterization data, including the results of EP toxicity testing as well as other leaching procedures (TCLP, ASTM, and batch/column) are considered in the decision, they are not the sole basis for determining whether to regulate FFC wastes as hazardous. The methodology specifically focuses on the risks posed by FFC wastes as they are actually managed.

EPA acknowledges that EP toxicity test results may not always represent the leaching potential of hazardous constituents from FFC wastes. However, some ash is (or could be) managed in offsite Subtitle D landfills. Furthermore, EPA has found significant variability in the leaching characteristics of FFC wastes, depending on the fossil-fuel source and boiler operating conditions. Therefore, EPA believes that consideration of EP toxicity data, in conjunction with the results of other leaching studies and data on the actual environmental impacts of waste management practices, is appropriate. Finally, EPA's data show that EP toxicity test results for the four large-volume wastes are not inconsistent with leach tests conducted using ASTM, batch/column, and TCLP methods (see February, 1988 RTC).

(2) EPA is concerned that several other wastes from coal-fired utilities may exhibit the hazardous characteristics of corrosivity or EP toxicity and merit regulation under Subtitle C. EPA intends to consider whether these waste streams should be regulated under Subtitle C of RCRA based on further study and information obtained during the public comment period.

Nineteen of the twenty-two respondents commented on the RTC's second recommendation to study low-volume wastes further and consider regulating these wastes under RCRA Subtitle C. All 19 respondents disagreed with the recommendation to regulate any low-volume wastes under Subtitle C.

Several commenters claimed that insufficient data existed to support a Regulatory Determination for low-volume wastes. EPA concurs with these comments.

The Agency intends to study co-managed low-volume wastes further to obtain sufficient data to make a Regulatory Determination. Low-volume wastes managed independently are outside the scope of the Bevill Exemption.

Many comments maintained that Subtitle C regulation is not warranted for low-volume wastes co-managed with large-volume coal combustion wastes. Some commenters claimed that the predominant industry practice is to co-dispose of low-volume wastes in ash or FGD sludge ponds (several commenters referenced the 1985 Radian study and the 1982 Envirosphere report). Such co-management was claimed to be practical, effective, and environmentally sound. The report acknowledges that this practice may reduce the potential hazard of low-volume wastes, by neutralization or dilution. Commenters emphasized that no adverse environmental impacts from the co-disposal of high-volume and low-volume wastes have been shown in studies by the electric utility industry and EPA and that none were cited in the RTC.

EPA acknowledges that the RTC contained very limited information on the extent and potential environmental impacts of co-management of low-volume wastes with ash, slag, and FGD wastes. In fact, although the Agency has information verifying that co-management does occur, there is limited information clarifying the amounts and types of co-management. Indeed, this was the reason EPA reached no tentative conclusions regarding these practices. Comprehensive studies were available for fewer than five of the hundreds of existing co-management sites. EPA's efforts to compile more recent data continue to show limited information on the effects of co-management. However, some information suggests that at several large-volume waste management sites where groundwater impacts have been detected (see data in the RCRA Docket), the operators have suggested that the cause of the contamination is co-management with low-volume wastes. Of specific concern are pyrites and chemical boiler cleaning wastes. Further, the Agency has observed that the general trend in the industry is to segregate certain low-volume wastes (i.e., pyrites, boiler cleaning wastes, and demineralizer regenerant) from ash, slag, and FGD sludge.

The Agency believes that additional data collection for the low-volume wastes co-managed with the large-volume wastes described in the report is required and is deferring a final Regulatory Determination for co-managed wastes, pending completion of further studies. Co-managed low-volume wastes remain exempt from hazardous waste regulation, however, until such a determination is made. As required under the Bevill Exemption, the Agency emphasizes that the decision on remaining wastes will be based on all Section 8002(n) study factors, not on waste characterization data alone.

As discussed in the scope section of this determination, the Agency does not consider process waters (e.g., non-contact cooling water and low-pressure service water) used in ash handling or FGD systems to be wastes. Also, the continuous use of these process waters as feedwater for emission control systems or for ash transport generally will not increase the environmental risks associated with the wastes relative to the risks derived from utilization of fresh water for the same purposes. Discouraging such practices may lead to an increased usage of fresh water for the same purposes, thereby increasing the total volume of water exposed to the large-volume wastes as well as the total volume of waste generated. The Agency believes that this would be an undesirable outcome of today's action. For these reasons, the Agency does not consider the practice of using these non-contact process waters in ash sluicing systems or as

makeup water for FGD systems to constitute co-management.

One commenter thought that the limitations applied to discharges of pollutants from ash disposal facilities under the National Pollutant Discharge Elimination System adequately protect the environment and that additional

regulations would be redundant.

The Agency does not concur with the commenter that meeting NPDES permit limits at surface water discharge points alone is necessarily adequate to ensure groundwater protection. For example, FFC waste management units may not have surface water discharges, and, therefore, might not be required to have NPDES permits. Even if NPDES-permitted, these units may generate leachate that could affect underlying groundwater. Although some States may use Federal NPDES permit requirements to protect groundwater resources, the Clean Water Act and the NPDES program generally focus on protecting surface water quality.

One commenter referred to a 1976 study conducted by an electric utility company in which both bench (laboratory) and field tests were conducted. The purpose of the study was to demonstrate to EPA, for purposes of meeting the effluent limitations of a NPDES permit, that co-disposal of two boiler cleaning wastes with ash in ash ponds provided treatment equivalent to that available from a dedicated waste treatment facility. The bench tests showed 99 percent treatment for metals. The commenter maintained that the [*42479] low-volume wastes were effectively treated without any increase in risk from the high-volume wastes (and the waste management unit) into which they were added.

EPA acknowledges that the referenced study does demonstrate that a level of Ph adjustment can be achieved over a period of time so that NPDES permit limits can be met. However, the study does not address protection of the groundwater underlying the impoundment. Further, the study provides data for only two types of boiler cleaning solution mixed with ash from a single plant. Because of the variability in types of boiler cleaning solutions and ash characteristics and the relative paucity of data on low-volume wastes and co-management in general (and the consequent uncertainty related to the environmental impacts of co-management), the Agency believes that further study is required.

Several commenters claimed that EPA appeared to have selectively included data from EP test results for boiler cleaning wastes and other low-volume waste streams in the RTC (Exhibits 5-5 and 5-6). Exhibit 5-5 (taken from the 1985 Radian study) presents test results for two treated and three untreated boiler cleaning waste streams. The commenters noted that the Radian study sets forth data for four untreated and four treated waste streams. None of the results for the streams omitted in the report exceeds the EP toxicity limits. To the extent that only the untreated waste streams for which an exceedence was shown are included in the report, the commenters maintained that observations on those results are overstated.

In addition, the commenters felt that the report was similarly selective in reporting "EP Toxicity Test Results for Liquid Low-Volume Wastes" (taken from the 1987 Radian study) shown in Exhibit 5-6. Where the original data included 17 boiler cleaning wastes and 7 waterside rinse tests, the report included only 10 boiler cleaning wastes and 3 waterside wastes in Exhibit 5-6. Additionally, by omitting the "less than" sign next to many of the values, there was concern that the report gives a false impression that a reading is a positive value, when actually the value was below the detection limit. It was also pointed out that

this omission factors into the calculation of the geometric mean for the samples.

EPA acknowledges the comments. The intent was not to overstate or overemphasize the frequency or magnitude of observed concentrations of

constituents in leachate. Rather, EPA was attempting simply to present data that illustrated the concentrations that could be observed. In its Regulatory Determination on the wastes, EPA considered all data (including non-detects), rather than only selected observations.

One commenter noted that the boiler cleaning wastewaters from the initial acid wash stage and subsequent rinses should not be considered separately because they are typically combined and managed together as a single waste stream. The commenter noted that the report shows these fluids as separate waste streams and includes data for each stream in Exhibit 5-6. If the data were collected on these fluids as a unified stream, the commenter claimed that the resulting boiler cleaning waste would likely not, exceed any of the current limits for EP toxicity.

The commenter went on to say that even if certain boiler cleaning wastes may, in certain circumstances, test hazardous as generated, this fact should not trigger Subtitle C regulation. The commenter emphasized that co-disposed boiler cleaning waste does not present a hazard and that this critical fact is acknowledged in the RTC.

The Agency has found that some utilities do manage the wastes generated during different stages of the waterside boiler tube cleaning operations separately, at least for some period of time. Therefore, the Agency believes that it is appropriate to consider waste characterization data for the distinct streams (as well as for combined streams). As noted previously, the Agency does not believe that the RTC and other currently available information provide sufficient data to complete a Regulatory Determination for boiler chemical cleaning wastes co-managed with large-volume wastes at this time.

One commenter cited data on 17 untreated waterside boiler cleaning wastes (which include ethylene-diamine-triacetic acid (EDTA), hydroxyacetic-formic acid, and ammoniated bromate and hydrochloric acid). Only one sample (or 5.8 per cent) showed an exceedence of the EP limits, for total lead with a concentration of 6.67 mg/l. The average lead concentration for all 17 samples was 1.43 mg/l with a median value of 0.5 mg/l. None of the 17 waterside boiler cleaning waste samples was corrosive.

Another commenter cited company data for 69 samples of waterside boiler cleaning wastes (which include EDTA, hydroxyacetic-formic acid, and citric acid). Among these samples, only 15 (or 22 percent) showed exceedences of the EP limits. Thirteen of these exceedences were for total chromium and two were for total lead. The average total chromium concentration for all 69 samples was 3.41 mg/l with a median value of 2.08 mg/l. The average total lead concentration was 1.23 mg/l with a median value of 0.56 mg/l. The commenter emphasized that these values were all considerably less than those cited in the RTC.

In addition, the company tested several of the same waterside boiler cleaning wastes for hexavalent chromium under the EP toxicity test procedure. Of the 16 samples so tested, only 1 showed a concentration of hexavalent chromium above the detection limit of 0.02 mg/l. Two of the 16 tested samples, exceeded 5.0

mg/l for total chromium concentrations. All 17 of the other samples showed concentrations of hexavalent chromium below the detection limit.

EPA acknowledges these comments and would welcome the opportunity to review any additional data. The averages for lead and chromium cited by the

commenters are indeed lower than those cited in the RTC. However, because some boiler cleaning chemicals appear to exhibit hazardous waste characteristics and the data on the impacts of their management with large-volume wastes are limited, the Agency believes further study is necessary before a final regulatory determination is made.

Several commenters claimed that the costs of managing low-volume wastes under Subtitle C would be very high. Some commenters felt that such management would necessitate transporting these wastes offsite, thereby posing risks of environmental releases without significant environmental benefit. Other commenters observed that continuing to manage these wastes onsite would require that the disposal facilities become treatment, storage, or disposal facilities.

As noted previously, EPA is deferring a final determination on low-volume wastes co-managed with the four large-volume wastes, pending additional data collection. As necessary and in accordance with the Section 8002(n) study factors, EPA will consider the potential cost impacts in making a determination for these wastes. Low-volume wastes managed independently are not and never have been within the scope of the Bevill Exemption.

The Agency also recognizes that transporting hazardous wastes may pose risks of environmental releases. However, regulations have been developed to ensure that hazardous wastes are transported in a manner [*42480] sufficient to protect human health and the environment (see 40 CFR @ 263).

Many commenters stated that when low-volume wastes are co-managed with high-volume wastes, the Bevill Amendment forbids EPA from regulating them until the Agency addresses each of the Section 8002(n) factors in its study and bases its determination on all of those factors. These commenters maintained that EPA may not rely solely on the outcome of a waste characteristic test as the basis of its Regulatory Determination regarding these wastes and this management process. They went on to say that the record assembled in the Report to Congress presents no evidence of environmental risk associated either with this co-management practice or with the co-disposed wastes and contains no information or findings as to many of the remaining Section 8002(n) factors.

For the reasons cited above, the data are insufficient to assess fully the potential risks associated with present co-disposal practices. As discussed, EPA does not intend to rely solely on waste characterization data as the basis of its Regulatory Determination for remaining wastes. The Agency acknowledges that many of the 8002(n) study factors have not been considered for low-volume wastes co-managed with high-volume wastes. EPA plans to address these study factors before we make a final regulatory determination on these wastes.

(3) EPA encourages the utilization of coal combustion wastes as one method for reducing the amount of these wastes that need to be disposed to the extent that such utilization can be done in an environmentally safe manner.

While all respondents agreed with the RTC's third recommendation encouraging coal combustion waste utilization, several qualifying comments were received.

One commenter noted that, while the RTC is correct in requiring that utilization to be done in an environmentally safe manner, Congress needs to be equally concerned that waste utilization is done in a structurally safe manner. This commenter claimed that the RTC's assertion, "all types of coal ash are

appropriate for use as construction materials, as cement additives, and for several other uses," is entirely erroneous. The commenter stated that the RTC contradicts this statement further on by delineating some of the reasons why some fly ashes are not appropriate for use in construction. All materials used in engineering construction work are required to comply with appropriate ASTM standards. Regarding utilization in concrete, the commenter felt that the RTC must cite the appropriate ASTM Standard C618.

EPA acknowledges and agrees with the comment. However, it is not within EPA's authority to mandate structural requirements, except where they may affect the potential for environmental impacts.

In a recommendation on utilization, one commenter pointed out that the RTC encourages this practice "to the extent that it can be done in an environmentally safe manner." The commenter cited the report's statement that "current waste utilization practices appear to be done in an environmentally safe manner." The commenter claims that there is no delineation between practices that are environmentally safe and ones that are not environmentally safe.

To date, and using the limited data available, the Agency has not found any environmental damages associated with the utilization of large-volume coal-fired utility wastes. However, the Agency agrees with the commenter that utilization of coal combustion wastes should be done in a manner fully protective of the environment and consistent with existing Federal and State regulations.

Several commenters disagreed with the RTC where it stated that the potential for significantly increasing the amount of waste utilization may be limited. Given current utilization techniques, the report predicts that the major portion of coal combustion wastes will continue to be land disposed. Some commenters felt that reluctance toward waste utilization is largely due to the stigma of classifying the by-products as "waste" and that EPA should remove "beneficially used coal ash" from the definition of "solid waste".

Some commenters also noted that in enacting RCRA, Congress intended that EPA take a more active role in resource conservation and recovery. They thought EPA should give stronger support for additional use and market development with the emphasis placed on large-volume utilization. It was noted that some States have exempted ash for reuse from their solid waste programs and recommended that the Agency support State efforts to authorize the use of coal combustion by-products.

These commenters claimed that considerable attention was directed to limited cases of adverse impact in the RTC. They maintained that EPA should acknowledge in its Regulatory Determination that a selective ash characterization program coupled with good engineering practice would ensure environmental acceptability of large-volume ash applications. The Agency should take a leadership role by issuing procurement guidelines related to the use of coal ash in high-volume applications within the transportation and construction industries. Such high-volume applications would include the use of coal ash as structural fills,

road embankments, and backfills.

The Agency notes that Congress specifically mandates in RCRA Section 8002(n) that the Agency consider the cases of adverse impact. The Agency encourages utilization of coal combustion byproducts and supports State efforts to

promote utilization in an environmentally beneficial manner. EPA notes that the Agency has issued a procurement guideline to encourage the use of fly ash in cement and concrete in Federal projects (see 48 FR 4230, January 28, 1984). The Agency prefers to allow States the flexibility to develop their own approaches to fostering utilization. The individual states are in the best position to determine what types of utilization are appropriate for their environmental settings.

Appendix B-Analysis of and Responses to Public Comments on the Notice of Data Availability

On February 12, 1993, the Agency issued a Notice of Data Availability (Notice) requesting comment on additional data on fossil-fuel combustion (FFC) wastes. These data are intended to update and supplement the materials presented in the 1988 Report to Congress on Wastes from the Combustion of Coal by Electric Utility Power Plants (RTC). In addition, the Notice solicited comment on the proposed methodology to be used in completing the August 1993 regulatory determination.

Comments were received from 14 parties. Several commenters also submitted additional published materials on FFC waste characteristics and management/treatment techniques. The Agency considered these materials in completing the regulatory determination, as appropriate.

The following discussion briefly summarizes the comments received on the additional data and the proposed methodology. The Agency's responses are also provided. The comments and responses have been grouped according to general topic areas.

Methodology: Several commenters supported the use of EPA's proposed three-step methodology for completing the FFC waste regulatory determination. No commenters disagreed with any aspect of the methodology. [*42481]

Fly Ash, Bottom Ash, Boiler Slag, and FGD Waste: Nearly all respondents indicated that the Notice documents supported the 1988 RTC's recommendation that large-volume combustion wastes do not warrant regulation under Subtitle C. No commenters disagreed with this recommendation.

The Agency concurs with the commenters that the information contained in the docket does not contradict the data presented in the RTC. The Notice documents update and supplement the RTC by providing additional data on waste characteristics, environmental monitoring, and environmental impacts.

Several commenters noted that State regulation of FFC waste management has become more stringent since the 1988 RTC. More stringent solid waste regulations, including waste testing requirements and design- and performance-based standards, were specifically cited.

The Department of Energy and the EPA have recently completed separate studies of the current level of State regulation of FFC wastes. Proceeding from the

findings of these studies, the Agency concurs with the commenters that State requirements have generally become more stringent since 1983 (when the data cited in the 1988 RTC were collected). EPA supplemented the 1983 data for all 50 States with an updated analysis of 17 States representing all geographic regions of the United States and generating approximately 70 percent of the Nation's

coal ash. As noted in the preamble to the regulatory determination, this study showed that States are imposing additional controls to ensure the proper management of these wastes.

One commenter felt that there is the potential for groundwater degradation from these coal combustion residues as a result of their leaching potential, although regulation of these wastes under Subtitle C is not appropriate. The inherent high permeability of materials landfilled without the benefit of stabilization or liners could allow a large volume of percolation to occur, resulting in potential groundwater contamination. The commenter urged the Agency to eliminate questionable coal combustion waste impoundments and suggested that regulations similar to 40 CFR part 258 (requirements for municipal solid waste landfills) would be appropriate for FFC waste management units.

While the Agency believes that design and operating requirements similar to part 258 may be appropriate for some FFC waste management units, the risks posed by FFC waste management are site-specific. Although groundwater contamination has occurred at certain coal combustion waste sites, contamination has been due to a limited number of constituents, which are likely to attenuate and dilute to safe levels before reaching an exposure point. This is in contrast to municipal solid waste landfills that are subject to 40 CFR part 258. The leachate at these sites often contains elevated levels of a wide range of toxic pollutants, and numerous damages have been observed. Therefore, the Agency believes that the level of protection provided by the part 258 criteria may not need to be universally applied to all FFC waste management units. It is therefore appropriate to allow the States to retain the flexibility to tailor requirements to site-specific or regional factors rather than establish broad Federal minimum requirements. It should be noted that many States have adopted regulatory requirements for FFC waste management units comparable to the part 258 criteria. EPA will consider these wastes as part of the Agency's ongoing assessment of industrial non-hazardous wastes under RCRA Subtitle D.

Low-Volume Wastes and Co-Management: Five of the fourteen respondents supported permanently retaining the exemption for low-volume coal-fired utility wastes co-managed with large-volume wastes. These commenters indicated that the 1988 RTC and Notice data show that co-management is an environmentally sound management practice. One commenter specifically cited two Electric Power Research Institute (EPRI) studies completed since 1988 as demonstrating that co-managed wastes should be excluded.

EPA's efforts to compile more recent data continue to show limited information on the effects of co-management. However, some information included in the Notice docket suggests that at several large-volume waste management sites where groundwater impacts have been detected, the operators have suggested that the cause of the contamination is co-management with low-volume wastes. Of specific concern to the Agency is co-management of ash, slag, and FGD waste with pyrites and/or chemical boiler cleaning wastes.

The Agency does not believe that the two recent co-management studies cited by the commenter are conclusive or sufficiently representative of the entire

universe of co-management sites. For example, at one site, EPRI findings indicate that a release is occurring because of pyrite co-disposal. The release is localized by site-specific conditions (i.e., alkaline soils) that may not be found at every facility. Similarly, a release is also occurring at the second site. While migration of constituents with primary drinking water standards is

limited, boron and sulfate have been detected in downgradient wells.

Low-volume wastes co-managed with large-volume wastes remain exempt pending additional study. Separately managed low-volume wastes are outside the scope of the exemption, as noted by one commenter representing a large part of the industry. The same commenter in responding to the RTC cited RCRA Section 3001(b)(3)(i) and a January 13, 1981, letter from G. Dietrich, U.S. EPA, to P. Emler, Utility Solid Waste Activities Group, as indicating that the Bevill Exemption applies only to low-volume wastes when they are co-managed with the four large-volume. n13

n13 Comments dated May 16, 1988, received from USWAG on the RTC and comments dated March 29, 1993, received from USWAG on the Notice (see Docket numbers F-88-PATA-FFFFF and F-93-FFCA-FFFFF).

However, the Agency cautions that the limited data available to date indicate that co-management of some large-volume wastes with pyrites and chemical boiler cleaning wastes can cause adverse environmental impacts. Pending the study of low-volume wastes co-managed with large-volume wastes, the Agency will continue to rely on its authorities pursuant to RCRA Section 7003 as well as its Superfund authorities under CERCLA Sections 104 and 106, to address any human health and environmental threats associated with the co-management of these wastes.

Several commenters emphasized that low-volume wastes are typically co-managed with ash, slag, and FGD wastes.

The Agency has observed that the general trend in the industry is to segregate certain low-volume wastes (e.g., boiler chemical cleaning wastes) from ash, slag, and FGD wastes. At some plants, low-volume wastes, such as pyrites and chemical boiler cleaning wastes, are now being disposed of separately. As indicated above, the Agency believes that additional study is required to evaluate the risks posed by co-management of the low-volume wastes with the large-volume wastes.

Reutilization: One commenter noted that in enacting RCRA, Congress intended that EPA take an active role in resource conservation and recovery. The commenter indicated that some States have developed overly stringent regulatory requirements that have [*42482] discouraged reuse of FFC wastes. Several commenters recommended that, in the Regulatory Determination, EPA should recognize coal combustion byproducts as beneficial resources rather than as waste materials.

Because, according to the RTC, the majority of coal combustion byproducts are currently managed as wastes rather than re-used (because, in part, of market conditions as well as regulatory status), the Agency believes it is appropriate to consider them waste materials. However, the Agency continues to encourage reutilization of coal combustion byproducts and supports State efforts to promote reutilization in an environmentally beneficial manner. In terms of exempting coal combustion wastes from the definition of solid waste, because

this determination is confined to the issue of whether to regulate those wastes as hazardous, this request is outside the scope of today's action. The Agency, however, is currently engaging in an effort to revise the definition of solid waste. In April 1993, EPA's Definition of Solid Waste Task Force held a public meeting in Washington, DC. The task force plans to hold a series of monthly

open meetings from July through November 1993, which will provide a forum for the public to provide input on the definition of solid waste.

Comments Related to Specific Documents:

Two commenters suggested that three documents in the docket addressing the Gavin Power Plant were added in error and should not be considered in the regulatory determination because they deal with the investigation of groundwater constituents (volatile organic compounds (VOCs)) that are unrelated to the management of coal combustion byproducts.

The Agency recognizes that the source of the VOC contamination at the Gavin site is unlikely to have been coal combustion wastes. These documents were included in the docket only to provide a complete understanding of groundwater conditions, including background levels, at the site.

Site Visit Reports: One commenter provided comments on EPA's site visit report for the Cayuga Power Station, PSI Energy, Incorporated. The commenter's specific remarks and the Agency's responses are summarized below:

One commenter noted that the Cayuga site visit report incorrectly assumes that all data in Table 5 are from downgradient wells. The commenter suggests that the maximum arsenic and vanadium values above background were actually detected in an ash well (PZ-14), rather than with a soil core system. Because of this, the commenter concludes that no adverse impact on groundwater has occurred.

In response, CPZ-14 is specifically identified in EPRI's Report on the Cayuga site (see Comanagement of Coal Combustion By-product and Low-Volume Wastes: Midwestern Sites, EPRI Report EN-7545) as a downgradient well, and arsenic and vanadium were found above background levels in the sediments immediately underlying the ash pond. The Agency acknowledges that any release of these constituents is limited because they were not found in other wells. It should further be noted that other constituents, including sulfate and boron, have consistently been found above background levels in several downgradient wells.

One commenter stated that the Cayuga site visit report overemphasizes the lack of background groundwater monitoring data, because the actual downgradient groundwater data show no adverse impacts.

The report only indicates which parameters appear to be above background levels and notes that the limited background data make any data analysis difficult. The site visit report does not comment on whether the data show any adverse impacts associated with the ash management unit.

One commenter noted that total constituent and hydroxylamine extraction coal ash data presented in the EPRI study and the Cayuga site visit report should not be used to consider the actual leaching potential.

These data were included in the site visit report because they were the only

waste characterization data available for the Cayuga site (no other leaching studies were performed). The Agency recognizes that the hydroxylamine extraction test provides a "worst case" estimate of the potential for constituent mobilization and would likely overestimate actual leachability. The Agency emphasizes that the proposed three-step methodology not only considers waste

characterization information, but also the actual risks posed by a waste in its "as managed" state.

One commenter noted that the new groundwater monitoring data included in the Notice docket show few exceedences of primary drinking water standards. Most exceedences of primary drinking water standards occurred at older sites that are atypical of current sites. Exceedences of Secondary Drinking Water Standards occur more frequently, but the percentage of sites involved is still low. The commenter noted that exceedences of SDWSs are not violations of a Federal standard requiring enforcement or of most State standards, since SDWSs are guidelines. Further, exceedences would likely not occur if the relevant point of compliance were set further from the site (e.g., 150 meters downgradient as in the municipal solid waste landfill rules). Finally, the commenter indicated that many elevated constituent levels could be attributable to natural or other non-coal ash related sources (data were cited from several sites). Another commenter suggested that the data show that the potential exists for groundwater degradation through migration of constituents with SDWSs (e.g., iron, sulfates, chlorides, and other soluble salts).

The Agency disagrees that the new docket materials show a low percentage of exceedences of both PDWSs and SDWSs. Of the 49 individual sites with groundwater monitoring information (summarized in Appendix D of the Supplemental Analysis of Potential Risks to Human Health and the Environment from Large-Volume Coal Combustion Waste, found in the docket), 19 had at least one exceedence of a PDWS, and 42 had at least one exceedence of a SDWS.

The Agency concurs that some of these exceedences of PDWSs could be due to contamination from other sources and that dilution and attenuation would tend to reduce contaminant concentration below levels of concern at receptors. While the Agency recognizes that SDWS exceedences are not always considered violations, elevated levels of secondary parameters can cause adverse impacts. Therefore, the Agency has considered the mobility of these parameters in determining the risks posed by FFC waste management. Acknowledging the results of this analysis, the Agency concurs that many newer units have been designed to prevent releases (i.e., with liners), releases are frequently localized by site-specific conditions such that contaminants do not reach receptors, and exceedences are sometimes caused by natural or non-coal ash related sources (often for chlorides, iron, and manganese). Finally, although much of the data is from older sites, many of these sites are currently active; therefore, they cannot be regarded as categorically atypical.

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Monday,
May 22, 2000

Part III

Environmental Protection Agency

40 CFR Part 261
Regulatory Determination on Wastes from the Combustion of Fossil Fuels; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

[FRL–6588–1]

RIN 2050–AD91

Notice of Regulatory Determination on Wastes From the Combustion of Fossil Fuels

AGENCY: Environmental Protection Agency.

ACTION: Regulatory determination.

SUMMARY: This document explains EPA's determination of whether regulation of fossil fuel combustion wastes is warranted under subtitle C of the Resource Conservation and Recovery Act (RCRA). Today's action applies to all remaining fossil fuel combustion wastes other than high volume coal combustion wastes generated at electric utilities and independent power producing facilities and managed separately, which were addressed by a 1993 regulatory determination. These include: Large-volume coal combustion wastes generated at electric utility and independent power producing facilities that are co-managed together with certain other coal combustion wastes; coal combustion wastes generated by non-utilities; coal combustion wastes generated at facilities with fluidized bed combustion technology; petroleum coke combustion wastes; wastes from the combustion of mixtures of coal and other fuels (*i.e.*, co-burning); wastes from the combustion of oil; and wastes from the combustion of natural gas.

The Agency has concluded these wastes do not warrant regulation under subtitle C of RCRA and is retaining the hazardous waste exemption under RCRA section 3001(b)(3)(C). However, EPA has also determined national regulations under subtitle D of RCRA are warranted for coal combustion wastes when they are disposed in landfills or surface impoundments, and that regulations under subtitle D of RCRA (and/or possibly modifications to existing regulations established under authority of the Surface Mining Control and Reclamation Act (SMCRA)) are warranted when these wastes are used to fill surface or underground mines.

So that coal combustion wastes are consistently regulated across all waste management scenarios, the Agency also intends to make these national regulations for disposal in surface impoundments and landfills and minefilling applicable to coal combustion wastes generated at electric utility and independent power producing facilities that are not co-managed with low volume wastes,.

The Agency has concluded that no additional regulations are warranted for coal combustion wastes that are used beneficially (other than for minefilling) and for oil and gas combustion wastes. We do not wish to place any unnecessary barriers on the beneficial use of fossil fuel combustion wastes so that they can be used in applications that conserve natural resources and reduce disposal costs. Currently, about one-quarter of all coal combustion wastes are diverted to beneficial uses. We support increases in these beneficial uses, such as for additions to cement and concrete products, waste stabilization and use in construction products such as wallboard.

DATES: Comments in response to data and information requests in this document are due to EPA on September 19, 2000.

ADDRESSES: Public comments and supporting materials are available for viewing in the RCRA Information Center (RIC). In addition to the data and information that was included in the docket to support the RTC on FFC waste and the Technical Background Documents, the docket also includes the following document: Responses to Public Comments on the Report To Congress, Wastes from the Combustion of Fossil Fuels. The RIC is located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The Docket Identification Number is F–2000–FF2F–FFFFF. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, we recommend that the public make an appointment by calling 703 603–9230. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost $0.15/page. The index and some supporting materials are available electronically. See the **SUPPLEMENTARY INFORMATION** section for information on accessing them.

Commenters must send an original and two copies of their comments referencing docket number F–2000–FF2F–FFFFF to: (1) If using regular US Postal Service mail: RCRA Docket Information Center, Office of Solid Waste (5305G), U.S. Environmental Protection Agency Headquarters (EPA, HQ), Ariel Rios Building, 1200 Pennsylvania Avenue, NW., Washington, DC 20460–0002; or (2) if using special delivery, such as overnight express service: RCRA Docket Information Center (RIC), Crystal Gateway One, 1235 Jefferson Davis Highway, First Floor, Arlington, VA 22202. Comments may also be submitted electronically through the Internet to: *rcra-docket@epa.gov*. Comments in electronic format should also be identified by the docket number F–2000–FF2F–FFFFF and must be submitted as an ASCII file avoiding the use of special characters and any form of encryption.

Commenters should not submit electronically any confidential business information (CBI). An original and two copies of CBI must be submitted under separate cover to: RCRA CBI Document Control Officer, Office of Solid Waste (5305W), U.S. EPA, Ariel Rios Building, 1200 Pennsylvania Avenue, NW., Washington, DC 20460–0002.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at 800 424–9346 or TDD 800 553–7672 (hearing impaired). In the Washington, DC, metropolitan area, call 703 412–9810 or TDD 703 412–3323.

For more detailed information on specific aspects of this regulatory determination, contact Dennis Ruddy, Office of Solid Waste (5306W), U.S. Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, NW, Washington, DC 20460–0002, telephone (703) 308–8430, e-mail address *ruddy.dennis@epa.gov*.

SUPPLEMENTARY INFORMATION: The index and several of the primary supporting materials are available on the Internet. You can find these materials at *<http://www.epa.gov/epaoswer/other/fossil/index.htm*.

The official record for this action will be kept in paper form. Accordingly, EPA will transfer all comments received electronically into paper form and place them in the official record, which will also include all comments submitted directly in writing. The official record is the paper record maintained at the address in **ADDRESSES** at the beginning of this notice.

EPA will not immediately reply to commenters electronically other than to seek clarification of electronic comments that may be garbled in transmission or during conversion to paper form, as discussed above.

The contents of today's notice are listed in the following outline:

1. General Information

A. What Action Is EPA Taking Today?

In today's action, we are determining that regulation of fossil fuel combustion (FFC) wastes under subtitle C of the Resource Conservation and Recovery Act (RCRA) is not warranted. This determination covers the following wastes:

- Large-volume coal combustion wastes generated at electric utility and independent power producing facilities that are co-managed together with certain other coal combustion wastes;
- Coal combustion wastes generated at non-utilities;
- Coal combustion wastes generated at facilities with fluidized bed combustion technology;
- Petroleum coke combustion wastes;
- Wastes from the combustion of mixtures of coal and other fuels (i.e., co-burning of coal with other fuels where coal is at least 50% of the total fuel);
- Wastes from the combustion of oil; and
- Wastes from the combustion of natural gas.

While these wastes remain exempt from subtitle C, we have further decided to establish national regulations under subtitle D of RCRA (RCRA sections 1008(a) and 4004(a)) for coal combustion wastes that are disposed in landfills or surface impoundments or used to fill surface or underground mines. For coal combustion wastes used as minefill, we will consult with the Office of Surface Mining in the Department of the Interior and thoroughly assess whether equivalent protectiveness could be achieved by using regulatory authorities available under the Surface Mining Control and Reclamation Act (SMCRA), as well as those afforded under the Resource Conservation and Recovery Act. We will consider whether RCRA subtitle D or SMCRA authorities or some combination of both are most appropriate to regulate the disposal of coal combustion wastes when used for minefill in surface and underground mines to ensure protection of human health and the environment. These standards will be developed through notice and comment rulemaking and in consultation with states and other stakeholders. These regulations will, in EPA's view, ensure that the trend towards improved management of coal combustion wastes over recent years will accelerate and will ensure a consistent level of protection of human health and the environment is put in place across the United States.

If, as a result of comments in response to this notice; the forthcoming analyses identified in this notice; or additional information garnered in the course of developing these national regulations; we find that there is a need for regulation under the authority of RCRA subtitle C, the Agency will revise this determination accordingly.

We recognize our decision to develop regulations under RCRA subtitle D (or, for minefilling, possibly under SMCRA) for the above-listed coal combustion wastes was not specifically identified as an option in our March 31, 1999 Report to Congress. Our final determination reflects our consideration of public comments received on the Report to Congress and other analyses that we conducted.

Today's decision was, in the Agency's view, a difficult one, given the many competing considerations discussed throughout today's notice. After considering all of the factors specified in RCRA section 8002(n), we have decided as discussed further below, that the decisive factors are the trends in present disposal and utilization practices (section 8002 (n)(2)), the current and potential utilization of the wastes (Section 8002 (n)(8), and the admonition against duplication of efforts by other federal and state agencies.

As described in the Report to Congress, the utility industry has made significant improvements in its waste management practices over recent years, and most state regulatory programs are similarly improving. For example, in the utility industry the use of liners and groundwater monitoring at landfills and surface impoundments has increased substantially over the past 15 years as indicated in the following table.

PERCENT OF UTILITY COAL COMBUSTION WASTE MANAGEMENT UNITS WITH CONTROLS IN 1995

Waste management unit	Liners		Groundwater monitoring	
	Percent of all units	Percent of new units*	Percent of all units	Percent of new units*
Landfills	57	75	85	88
Surface Impoundments	26	60	38	65

*New units constructed between 1985–1995.
Source: USWAG, EPRI 1995.

Public comments and other analyses, however, have convinced us that these wastes could pose risks to human health and the environment if not properly managed, and there is sufficient evidence that adequate controls may not be in place—for example, while most states can now require newer units to include liners and groundwater monitoring, 62% of existing utility surface impoundments do not have groundwater monitoring. This, in our view, justifies the development of national regulations. We note, however, that some waste management units may not warrant liners and/or groundwater monitoring, depending on site-specific characteristics.

New information we received in public comments includes additional documented damage cases, as well as cases indicating at least a potential for damage to human health and the environment. We did not independently investigate these damage cases; rather, we relied on information contained in state files. While the absolute number of documented damage cases is not large, we have considered the evidence of proven and potential damage in light of the proportion of facilities that lack basic environmental controls (*e.g.*, groundwater monitoring). We acknowledge, moreover, that our inquiry into the existence of damage cases was focused primarily on a subset of states—albeit states that account for almost 20 percent of coal fired utility electricity generation capacity. Given the volume of coal combustion wastes generated nationwide (115 million tons) and the numbers of facilities that currently lack some basic environmental controls, especially groundwater monitoring, other cases of proven and potential damage are likely to exist. Because EPA did not use a statistical sampling methodology to evaluate the potential for damage, the Agency is unable to determine whether the identified cases are representative of the conditions at all facilities and, therefore, cannot quantify the extent and magnitude of damages at the national level.

Since the Report to Congress, we have conducted additional analyses of the potential for the constituents of coal combustion wastes to leach in dangerous levels into ground water. Based on a comparison of drinking water and other appropriate standards to leach test data from coal combustion waste samples, we identified a potential for risks from arsenic that we cannot dismiss at this time. This conclusion is based on possible exceedences of a range of values that EPA is currently considering for a revised arsenic MCL. Once a new arsenic MCL is established, additional groundwater modeling may be required to evaluate the likelihood of exceeding that MCL.

As discussed further below, in light of certain comments received on the Report to Congress, we are not relying on a quantitative groundwater risk assessment to assess potential risks to human health or the environment. In the absence of a more complete groundwater risk assessment, we are unable at this time to draw quantitative conclusions regarding the risks due to arsenic or other contaminants posed by improper waste management. Once we have completed a review of our groundwater model and made any necessary changes, we will reevaluate groundwater risks and take appropriate regulatory actions. We will specifically assess new modeling results as they relate to any promulgated changes in the arsenic MCL.

We acknowledge that, even without federal regulatory action, many facilities in the utility industry have either voluntarily instituted adequate environmental controls or have done so at the direction of states that regulate these facilities. In addition, we found that for the proven damage cases, the states (and in two cases, EPA under the Superfund program) have taken action to mitigate risk and require corrective action. However, in light of the evidence of actual and potential environmental releases of metals from these wastes; the large volume of wastes generated from coal combustion; the proportion of existing and even newer units that do not currently have basic controls in place; and the presence of hazardous constituents in these wastes; we believe, on balance, that the best means of ensuring that adequate controls are imposed where needed is to develop national subtitle D regulations. As we develop and issue the national regulations, we will try to minimize disruptions to operation of existing waste management units.

In taking today's action, we carefully considered whether to develop national regulations under RCRA subtitle D or subtitle C authorities. One approach we considered was to promulgate regulations pursuant to subtitle C authority, similar to recently proposed regulations applicable to cement kiln dust. Under this approach, EPA would have established national management standards for coal combustion wastes managed in landfills and surface impoundments and used for minefilling, as well as a set of tailored subtitle C requirements, promulgated pursuant to RCRA section 3004(x). If wastes were properly managed in accordance with subtitle D-like standards, they would not be classified as a hazardous waste. If wastes were not properly managed, they would become listed hazardous wastes subject to tailored subtitle C standards. This approach would give EPA enforcement authority in states following their adoption of the contingent management listing.

We believe, however, for the reasons described below, the better approach at this time to ensuring adequate management of FFC wastes is to develop national regulations under subtitle D rather than subtitle C. EPA has reached this conclusion in large part based on consideration of "present disposal and utilization practices." RCRA § 8002(n). As noted above, present disposal practices in landfills and surface impoundments are significantly better than they have been in the past in terms of imposing basic environmental controls such as liners and groundwater monitoring. This trend is the result of increasing regulatory oversight by states of the management of these wastes as well as voluntary industry improvements. In the 1980's, only 11

states had authority to require facilities to install liners, and 28 states had the authority to require facilities to conduct groundwater monitoring at landfills. As of 1995, these rates were significantly higher, with 43 states having the authority to require liners and 46 states having the authority to require groundwater monitoring at landfills. When authority under state groundwater and drinking water regulations are considered, some commenters have suggested that nearly all states can address the management of these wastes. Thus, with the exception of relatively few states, the regulatory infrastructure is generally in place at the state level to ensure adequate management of these wastes.

While the trend both in terms of state regulatory authorities and the imposition of controls at these facilities has been positive, between 40 and 70 percent of sites lacked controls such as liners and/or groundwater monitoring as of 1995. This gap is of environmental concern given the potential for risks posed by mismanagement of coal combustion wastes in certain circumstances. Nonetheless, given most of the states' current regulatory capabilities and the evidence that basic controls are increasingly being put in place by the states and facilities (see RCRA section 8002(n), which directs EPA to consider actions of state and other federal agencies with a view to avoiding duplication of effort), EPA believes that subtitle D controls will provide sufficient clarity and incentive for states to close the remaining gaps in coverage, and for facilities to ensure that their wastes are managed properly.

For minefilling, although we have considerable concern about certain current practices (*e.g.*, placement directly into groundwater) we have not yet identified a case where placement of coal wastes can be determined to have actually caused increased damage to ground water. In addition, there is a federal regulatory program—SMCRA—expressly designed to address environmental risks associated with coal mines. Finally, given that states have been diligent in expanding and upgrading programs, as they have done for surface impoundments and landfills, we believe they will be similarly responsive in addressing environmental concerns arising from this emerging practice. In short, we arrive at the same conclusions, for substantially the same reasons, for this practice as we did for landfills and surface impoundments: that subtitle D controls, or upgraded SMCRA controls or a combination of the two, should provide sufficient clarity and incentive to ensure proper handling of this waste. Having determined that subtitle C regulation is not warranted for all other management practices, EPA does not see a basis in the record for carving this one practice out for separate regulatory treatment.

Once these regulations are effective, facilities would be subject to citizen suits for any violation of the standards. If EPA were addressing wastes that had not been addressed by the states (or the federal government) in the past, or an industry with wide evidence of irresponsible solid waste management practices, EPA may well conclude that the additional incentives for improvement and compliance provided by the subtitle C scheme—the threat of federal enforcement and the stigma associated with improper management of RCRA subtitle C waste—were necessary. But the record before us indicates that the structure and the sanctions associated with a subtitle D approach (or a SMCRA approach if EPA determines it is equivalent) should be sufficient.

We also see a potential downside to pursuing a subtitle C approach. Section 8002(n)(8) directs us to consider, among other factors, "the current and potential utilization of such materials." Industry commenters have indicated that they believe subjecting any coal combustion wastes to a subtitle C regime would place a significant stigma on these wastes, the most important effect being that it would adversely impact beneficial reuse. As we understand it, the concern is that, even though beneficially reused waste would not be hazardous under the contemplated subtitle C approach, the link to subtitle C would nonetheless tend to discourage purchase and re-use of the waste. We do not wish to place any unnecessary barriers on the beneficial uses of these wastes, because they conserve natural resources, reduce disposal costs and reduce the total amount of waste destined for disposal. States and industry have also expressed concern that regulation under subtitle C could cause a halt in the use of coal combustion wastes to reclaim abandoned and active mine sites. We recognize that when done properly, minefilling can lead to substantial environmental benefits. EPA believes the contingent management scheme we discussed should diminish any stigma that might be associated with the subtitle C link. Nonetheless, we acknowledge the possibility that the approach could have unintended consequences. We would be particularly concerned about any adverse effect on the beneficial re-use market for these wastes because more than 23 percent (approximately 28 million tons) of the total coal combustion waste generated each year is beneficially reused and an additional eight percent (nine million tons) is used for minefilling. EPA believes that such reuse when performed properly, is by far the environmentally preferable destination for these wastes, including when minefilled. Normally, concerns about stigma are not a deciding factor in EPA's decisions under RCRA, given the central concern under the statute for protection of human health and the environment. However, given our conclusion that the subtitle D approach here should be fully effective in protecting human health and the environment, and given the large and salutary role that beneficial reuse plays for this waste, concern over stigma is a factor supporting our decision today that subtitle C regulation is unwarranted in light of our decision to pursue a subtitle D approach.

Additionally, in a 1993 regulatory determination, EPA previously addressed large volume coal combustion wastes generated at electric utility and independent power producing facilities that manage the wastes separately from certain other low volume and uniquely associated coal combustion wastes (see 58 FR 42466; August 9, 1993). Our 1993 regulatory determination maintained the exemption of these large volume coal combustion wastes from being regulated as hazardous wastes when managed separately from other wastes (e.g., in monofills). We intend that the national subtitle D regulations we develop for the coal combustion wastes subject to today's regulatory determination will also be applicable to the wastes covered in the 1993 regulatory determination for the reasons listed below, so that all coal combustion wastes are consistently regulated for placement in landfills, surface impoundments, and minefills.

- The co-managed coal combustion wastes that we studied extensively in making today's regulatory determination derive their characteristics largely from these large-volume wastes and not from the other wastes that are co-managed with them.
- We believe that the risks posed by the co-managed coal combustion wastes result principally from the large-volume wastes.
- These large-volume coal combustion wastes, account for over 20% of coal combustion wastes.

As we proceed with regulation development, we will also take enforcement action under RCRA section 7003 when we identify cases of imminent and substantial endangerment. We will also use Superfund remedial and emergency

response authorities under the Comprehensive Environmental Response Compensation and Liabilities Act (CERCLA), as appropriate, to address damages that result in risk to human health and the environment.

However, as stated above, this decision was a difficult one and EPA believes that, absent our conclusions regarding the current trends in management of this waste, the waste might present sufficient potential threat to human health and the environment to justify subtitle C regulation. There are several factors that might cause us to rethink our current determination. First, and perhaps most importantly, if current trends toward protective management do not continue, EPA may well determine that subtitle C regulation is warranted for this waste. As we have stated, we do not believe the current gaps in the basic controls are acceptable, and our determination that subtitle C regulation is not warranted is premised to a large extent on our conclusion that subtitle D regulation will be sufficient to close these gaps. If this conclusion turns out not to be warranted, we would be inclined to re-examine our current decision.

Second, EPA will continue to examine available information and, as a result of the ongoing review, may conclude over the next several months that this decision should be revised. Our ongoing review will include consideration of: (1) The extent to which fossil fuel combustion wastes have caused actual or potential damage to human health or the environment; (2) the environmental effects of filling underground and surface coal mines with fossil fuel combustion wastes; and (3) the adequacy of existing state and/or federal regulation of these wastes. Finally, the agency will consider the results of a report of the National Academy of Sciences regarding the adverse human health effects of mercury, one of the constituents in fossil fuel combustion wastes. EPA believes that this report will enhance our understanding of the risks due to exposure to mercury. All of these efforts may result in a subsequent revision of today's regulatory determination.

Finally, relating to oil combustion wastes, we will work with relevant stakeholders so that any necessary measures are taken to ensure that oil combustion wastes currently managed in the two known remaining unlined surface impoundments are managed in a manner that protects human health and the environment.

B. What Is the Statutory Authority for This Action?

We are issuing today's notice under the authority of RCRA section 3001 (b)(3)(C), as amended. This section exempts certain wastes, including fossil fuel combustion wastes, from hazardous waste regulation until the Agency completes a Report to Congress mandated by RCRA section 8002 (n) and maintains the exemption, unless the EPA Administrator makes a determination that subtitle C (hazardous waste) regulation is warranted. RCRA section 3004 (x) provides the Agency with flexibility in developing subtitle C standards. If appropriate, these formerly exempted wastes may not be subjected to full subtitle C requirements in areas such as treatment standards, liner design requirements and corrective action.

C. What Was the Process EPA Used in Making Today's Decision?

1. What Approach Did EPA Take to Studying Fossil Fuel Combustion Wastes?

We conducted our study of wastes generated by the combustion of fossil fuels in two phases. The first phase, called the Part 1 determination, covered high volume coal combustion wastes (*e.g.*, bottom ash and fly ash) generated at electric utility and independent power producing facilities (non-utility electric power producers that are not engaged in any other industrial activity) and managed separately from other fossil fuel combustion wastes. In 1993, EPA issued a regulatory determination that exempted Part 1 wastes from regulation as hazardous wastes (see 58 FR 42466; August 9, 1993). Today's regulatory determination is the second phase of our effort, or the Part 2 determination. It covers all other fossil fuel combustion wastes not covered in Part 1. This includes high volume, utility-generated coal combustion wastes when co-managed with certain low volume wastes that are also generated by utility coal burners; coal combustion wastes generated by industrial, non-utility, facilities; and wastes from the combustion of oil and gas. Under court order, we are required to complete the Part 2 regulatory determination by April 25, 2000. [1]

[1] The consent decree entered into by EPA (*Frank Gearhart, et al.* v. *Browner, et al.*, No. 91-2435 (D.D.C.) for completing the studies and regulatory determination for fossil fuel combustion wastes used the term "remaining wastes" to differentiate the wastes to be covered in today's decision from the large-volume utility coal combustion wastes that were covered in the August 1993 regulatory determination (see 58 FR 42466).

2. What Statutory Requirements Does EPA Have To Meet in Making Today's Regulatory Determinations?

RCRA section 8002(n) specifies eight study factors that we must take into account in our decision-making. These are:

1. The source and volumes of such materials generated per year.
2. Present disposal practices.
3. Potential danger, if any, to human health and the environment from the disposal of such materials.
4. Documented cases in which danger to human health or the environment has been proved.
5. Alternatives to current disposal methods.
6. The costs of such alternatives.
7. The impact of those alternatives on the use of natural resources.
8. The current and potential utilization of such materials.

Additionally, in developing the Report to Congress, we are directed to consider studies and other actions of other federal and State agencies with a view toward avoiding duplication of effort (RCRA section 8002(n)). In addition to considering the information contained in the Report, EPA is required to base its regulatory determination on information received in public hearings and comments submitted on the Report to Congress (RCRA section 3001(b)(3)(C)).

3. What Were the Agency's Sources of Information and Data That Serve as the Basis for This Decision?

We gathered publicly available information from a broad range of sources, including federal and state agencies, industry trade groups, environmental organizations, and open literature searches. We requested information from all stakeholder groups on each of the study factors Congress requires us to evaluate. For many of the study factors, very limited information existed prior to this study. We worked closely with the Edison Electric Institute (EEI), Utility Solid Waste Activities Group (USWAG), the Electric Power Research Institute (EPRI), and the Council of Industrial Boiler Owners (CIBO) as those organizations developed new information. Because other ongoing EPA projects currently focus on portions of the FFC waste generator universe, we also leveraged data collection efforts conducted for air, industrial waste, and hazardous waste programs. In addition, we obtained information from environmental organizations regarding beneficial uses of some FFC wastes and methods for characterizing the risks associated with FFC wastes.

Specifically, we gathered and analyzed the following information from industry, states and environmental groups:

- Published and unpublished materials obtained from state and federal agencies, utilities and trade industry groups, and other knowledgeable parties on the volumes and characteristics of coal, oil, and natural gas combustion wastes and the corresponding low-volume and uniquely associated wastes (see the following section for a description of "uniquely associated wastes").
- Published and unpublished materials on waste management practices (including co-disposal and re-use) associated with FFC wastes and the corresponding low-volume and uniquely associated wastes.
- Published and unpublished materials on the potential environmental impacts associated with FFC wastes.
- Published and unpublished materials on trends in utility plant operations that may affect waste volumes and characteristics. We gathered specific information on innovations in scrubber use and the potential impacts of the 1990 Clean Air Act Amendments on waste volumes and characteristics.
- Energy Information Agency (EIA), Department of Energy, data on utility operations and waste generation obtained from EIA's Form 767 database. These data are submitted to EIA annually by electric utilities.
- Site visit reports and accompanying facility submittals for utility and non-utility plants we visited during the study.
- Materials obtained from public files maintained by State regulatory agencies. These materials focus on waste characterization, waste management, and environmental monitoring data, along with supporting background information.

We visited five states to gather specific information about state regulatory programs, FFC waste generators, waste management practices and candidate damage cases related to fossil fuel combustion. The five states we examined in great detail were: Indiana, Pennsylvania, North Carolina, Wisconsin, and Virginia. These five states account for almost 20 percent of coal-fired utility electrical generation capacity.

We also performed a variety of analyses, including human health and ecological risk assessments, analyses of existing federal and state regulatory programs, and economic impact analyses. We discussed and shared these results with all of our stakeholders. We also conducted an external peer review of our risk analysis.

4. What Process Did EPA Follow To Obtain Comments on the Report to Congress?

RCRA requires that we publish a Report to Congress (RTC) evaluating the above criteria. Further, within six months of submitting the report, we must, after public hearings and opportunity for comment, decide whether to retain the exemption from hazardous waste requirements or whether regulation as hazardous waste is warranted. On March 31, 1999, we issued the required RTC on those fossil fuel combustion wastes (coal, oil and gas) not covered in the Part 1 regulatory determination, which are also known as the "remaining wastes" (see footnote 1).

We asked the public to comment on the Report and the appropriateness of regulating fossil fuel wastes under subtitle C of RCRA. To ensure that all interested parties had an opportunity to present their views, we held a public meeting with stakeholders on May 21, 1999. The April 28, 1999 **Federal Register** notice provided a 45-day public comment period, until June 14, 1999. We received over 150 requests to extend the public comment period by up to six months. However, we were obligated by a court-ordered deadline to issue our official Regulatory Determination by October 1, 1999. (See 64 FR 31170; June 10, 1999.) In response to requests for an extension, we entered into discussions with the parties to consider an extension of the comment period to ensure that all interested members of the public had sufficient time to complete their review and submit comments. Subsequently, the plaintiffs in *Gearhart* v. *Reilly* moved to modify the consent decree to reopen the comment period and to allow EPA until March 10, 2000 to complete the Regulatory Determination. We supported the motion, and on September 2, 1999, the Court granted the motion. In compliance with the court order, on September 20, 1999, we announced that public comments would be accepted through September 24, 1999 (64 FR 50788; Sept. 20, 1999). We have since received two extensions to the date for the final determination. Currently, EPA is directed to issue the Part 2 regulatory determination by April 25, 2000.

We received about 220 comments on the RTC from the public hearing and our **Federal Register** requests for comments. The docket for this action (Docket No. F–99–FF2P–FFFFF) contains all individual comments presented in the public meetings and hearing, and a transcript from the public hearing, and all written comments. The docket is available for public inspection. Today's decision is based on the RTC, its underlying data and analyses, public comments, and EPA analyses of these comments.

The comments covered a wide variety of topics discussed in the Report to Congress, such as fossil fuel combustion waste generation and characteristics; current and alternative practices for managing FFC waste; documented damage cases and potential danger to human health and the environment; existing regulatory controls on FFC waste management; cost and economic impacts of alternatives to current management practices; FFC beneficial use practices; and our review of applicable state and federal regulations.

D. What Is the Significance of "Uniquely Associated Wastes" and What Wastes Does EPA Consider To Be "Uniquely Associated Wastes?'

Facilities that burn fossil fuels generate combustion wastes and also generate other wastes from processes that are related to the main fuel combustion processes. Often, as a general practice, facilities co-dispose these wastes with the large volume wastes that are subject to the RCRA section 3001 (b) (3) (C) exemption. Examples of these related wastes are:

- Precipitation runoff from the coal storage piles at the facility.
- Waste coal or coal mill rejects that are not of sufficient quality to burn as fuel.
- Wastes from cleaning the boilers used to generate steam.

There are numerous wastes like these, collectively known as "low-volume" wastes. Further, when one of these low-volume wastes, during the course of generation or normal handling at the facility, comes into contact with either fossil fuel (*e.g.*, coal, oil) or fossil fuel combustion waste (*e.g.*, coal ash or oil ash) and it takes on at least some of the characteristics of the fuel or combustion waste, we call it a "uniquely associated" waste. When uniquely associated wastes are co-managed with fossil fuel combustion wastes, they fall within the coverage of today's regulatory determination. When managed separately, uniquely associated wastes are subject to regulation as hazardous waste if they are listed wastes or exhibit the characteristic of a hazardous waste (see 40 CFR 261.20 and 261.30, which specify when a solid waste is considered to be a hazardous waste).

The Agency recognizes that determining whether a particular waste

is uniquely associated with fossil fuel combustion involves an evaluation of the specific facts of each case. In the Agency's view, the following qualitative criteria should be used to make such determinations on a case-by-case basis:

(1) Wastes from ancillary operations are not "uniquely associated" because they are not properly viewed as being "from" fossil fuel combustion.

(2) In evaluating a waste from non-ancillary operations, one must consider the extent to which the waste originates or derives from the fossil fuels, the combustion process, or combustion residuals, and the extent to which these operations impart chemical characteristics to the waste.

The low-volume wastes that are not uniquely associated with fossil fuel combustion would not be subject to today's regulatory determination. That is, they would not be accorded an exemption from RCRA subtitle C, whether or not they were co-managed with any of the exempted fossil fuel combustion wastes. Instead, they would be subject to the RCRA characteristic standards and hazardous waste listings. The exemption applies to mixtures of an exempt waste with a non-hazardous waste, but when an exempt waste is mixed with a hazardous waste, the mixture is not exempt.

Based on our identification and review of low volume wastes associated with the combustion of fossil fuels, we are considering offering the following guidance concerning which low volume wastes are uniquely associated with and which are not uniquely associated with fossil fuel combustion. Unless there are some unusual site-specific circumstances, we would generally consider that the following lists of low volume wastes are uniquely and non-uniquely associated wastes:

Uniquely Associated

- Coal Pile Runoff
- Coal Mill Rejects and Waste Coal
- Air Heater and Precipitator Washes
- Floor and Yard Drains and Sumps
- Wastewater Treatment Sludges
- Boiler Fireside Chemical Cleaning Wastes

Not Uniquely Associated

- Boiler Blowdown
- Cooling Tower Blowdown and Sludges
- Intake or Makeup Water Treatment and Regeneration Wastes
- Boiler Waterside Cleaning Wastes
- Laboratory Wastes
- General Construction and Demolition Debris
- General Maintenance Wastes

Moreover, we do not generally consider spillage or leakage of materials used in the processes that generate these non-uniquely associated wastes, such as boiler water treatment chemicals, to be uniquely associated wastes, even if they occur in close proximity to the fossil fuel wastes covered by this regulatory determination.

An understanding of whether a waste is uniquely associated can be important in one circumstance. If a waste is not uniquely associated and is a hazardous waste, co-managment with a Bevill waste will result in loss of the Bevill exemption. As a general matter, the wastes identified above as potentially not uniquely associated do not tend to be hazardous. This issue may therefore not be critical. The Agency, however, must still define appropriate boundaries for the Bevill exemption, because there is no authority to grant Bevill status to wastes that are not uniquely associated—the exemption was not intended as an umbrella for wastes that other industries must treat as hazardous.

EPA solicits comment on this discussion of uniquely associated wastes in the context of fossil fuel combustion and will issue final guidance after reviewing and evaluating information we receive as a result of this request.

E. Who Is Affected by Today's Action and How Are They Affected?

As explained above, fossil fuel combustion wastes generated from the combustion of coal, oil and natural gas will continue to remain exempt from being regulated as hazardous wastes under RCRA. No party is affected by today's determination to develop regulations applicable to coal combustion wastes when they are land disposed or used to fill surface or underground mines because today's action does not impose requirements. However, if such regulations are promulgated, they would affect coal combustion wastes subject to today's regulatory determination as well as wastes covered by the Part 1 regulatory determination when they are disposed in landfills and surface impoundments, or when used to fill surface or underground mines.

While we do not intend that national subtitle D regulations would be applicable to oil combustion wastes, we intend to work with relevant stakeholders so that any necessary measures are taken to ensure that oil combustion wastes currently managed in the two known remaining unlined surface impoundments are managed in a manner that protects human health and the environment.

F. What Additional Actions Will EPA Take After this Regulatory Determination Regarding Coal, Oil and Natural Gas Combustion Wastes?

To ensure that entities who generate and/or manage fossil fuel combustion wastes provide long-term protection of human health and the environment, we plan several actions:

- We will review comments submitted in response to today's notice on uniquely associated wastes and on the adequacy of the guidance developed by the utility industry on co-management of mill rejects (pyrites) with large volume coal combustion wastes.
- We will work with the State of Massachusetts and the owners and operators of the remaining two oil combustion facilities that currently manage their wastes in unlined surface impoundments to ensure that any necessary measures are taken so these wastes are managed in a manner that protects human health and the environment (described in section 3.D. of this document).
- We are evaluating the groundwater model and modeling methods that were used in the RTC to estimate risks for these wastes. This review may result in a re-evaluation of the potential groundwater risks posed by the management of fossil fuel combustion wastes and action to revise our Part 1 and Part 2 determinations if appropriate (see section 2.C. of this document).
- There are a number of ongoing and evolving efforts underway at EPA to improve our understanding of the human health impacts of wastes used in agricultural settings. We expect to receive substantial comments and new scientific information based on a risk assessment of the use of cement kiln dust as a substitute for agricultural lime (see 64 FR 45632; August 20, 1999) and other Agency efforts. As a result, we may refine our methodology for assessing risks related to the use of wastes in agricultural settings. If these efforts lead us to a different understanding of the risks posed by fossil fuel combustion wastes when used as a substitute for agricultural lime, we will take appropriate action to reevaluate today's regulatory determination (see section 2.C. of this document).
- We will review the findings and recommendations of the National Academy of Sciences upcoming report on mercury and assess its implications on risks due to exposure to mercury. We will ensure that the regulations we develop as a result of today's regulatory determination address any additional

risks posed by these wastes if hazardous constituent levels exceed acceptable levels

- We will reevaluate risk posed by managing coal combustion solid wastes if levels of mercury or other hazardous constituents change due to any future Clean Air Act air pollution control requirements for coal burning utilities (see section 2.C. of this document).
- We will continue EPA's partnership with the states to finalize voluntary industrial solid waste management guidance that identifies baseline protective practices for industrial waste management units, including fossil fuel combustion waste management units. We will use relevant information and knowledge that we obtain as a result of this effort to assist us in developing national regulations applicable to coal combustion wastes.

2. What Is the Basis for EPA's Regulatory Determination for Coal Combustion Wastes?

A. What Is the Agency's Decision Regarding the Regulatory Status of Coal Combustion Wastes and Why Did EPA Make That Decision?

We have determined at this time that regulation of coal combustion wastes under subtitle C is not warranted. However, we have also decided that it is appropriate to establish national regulations under non-hazardous waste authorities for coal combustion wastes that are disposed in landfills and surface impoundments. We believe that subtitle D regulations are the most appropriate mechanism for ensuring that these wastes disposed in landfills and surface impoundments are managed safely.

EPA's conclusion that some form of national regulation is warranted to address these wastes is based on the following considerations: (a) The composition of these wastes could present danger to human health and the environment under certain conditions, and "potential" damage cases identified by EPA and commenters, while not definitively demonstrating damage from coal combustion wastes, may indicate that these wastes have the potential to pose such danger; (b) we have identified eleven documented cases of proven damages to human health and the environment by improper management of these wastes in landfills and surface impoundments; (c) present disposal practices are such that, in 1995, these wastes were being managed in 40 percent to 70 percent of landfills and surface impoundments without reasonable controls in place, particularly in the area of groundwater monitoring; and (d) while there have been substantive improvements in state regulatory programs, we have also identified gaps in state oversight.

When we considered a tailored subtitle C approach, we estimated the potential costs of regulation of coal combustion wastes (including the utility coal combustion wastes addressed in the 1993 Part 1 determination) to be $1 billion per year. While large in absolute terms, we estimate that these costs are less than 0.4 percent of industry sales. To improve our estimates we solicit public comment on the potential compliance costs to coal combustion waste generators as well as the indirect costs to users of these combustion by-products.

We have also decided that it is appropriate to establish national regulations under RCRA non-hazardous waste authorities (and/or possibly modifications to exiting regulations established under authority of SMCRA) applicable to the placement of coal combustion wastes in surface or underground mines. We have reached this decision because (a) we find that these wastes when minefilled could present a danger to human health and the environment under certain circumstances, and (b) there are few states that currently operate comprehensive programs that specifically address the unique circumstances of minefilling, making it more likely that damage to human health or the environment could go unnoticed.

With the exception of minefilling as described above, we have decided that national regulation under subtitle C or subtitle D is not warranted for any of the other beneficial uses of coal combustion wastes. We have reached this decision because: (a) We have not identified any other beneficial uses that are likely to present significant risks to human health or the environment; and (b) no documented cases of damage to human health or the environment have been identified. Additionally, we do not want to place any unnecessary barriers on the beneficial uses of coal combustion wastes so they can be used in applications that conserve natural resources and reduce disposal costs.

B. What Were EPA's Tentative Decisions as Presented in the Report to Congress?

On March 31, 1999, EPA indicated a preliminary decision that disposal of coal combustion wastes should remain exempt from regulation under RCRA subtitle C. We also presented our tentative view that most beneficial uses of these wastes should remain exempt from regulation under RCRA subtitle C. However, in the RTC we identified three situations where we had particular concerns with the disposition or uses of these wastes.

First, we indicated some concern with the co-management of mill rejects ("pyrites") with coal combustion wastes which, under certain circumstances, could cause or contribute to ground water contamination or other localized environmental damage. We indicated that the utility industry responded to our concern by implementing a voluntary education and technical guidance program for the proper management of these wastes. We expressed satisfaction with the industry program and tentatively concluded that additional regulation in this area was not necessary. We explained that we were committed to overseeing industry's progress on properly managing pyritic wastes, and would revisit our regulatory determination relative to co-management of pyrites with large volume coal combustion wastes at a later date, if industry progress was insufficient in this area.

Second, in the RTC we identified potential human health risks from arsenic when these wastes are used for agricultural purposes (*e.g.*, as a lime substitute). To address this risk, we indicated our preliminary view that Subtitle C regulations may be appropriate for this management practice. We explained that an example of such controls could include regulation of the content of these materials such that, when used for agricultural purposes, the arsenic level could be no higher than that found in agricultural lime. As an alternative to subtitle C regulation, we indicated that EPA could engage the industry to implement a voluntary program to address the risk, for example, by limiting the level of arsenic in coal combustion wastes when using them for agricultural purposes. Moreover, we indicated that a decision to establish hazardous waste regulations applicable to agricultural uses of co-managed coal combustion wastes would likely affect the regulatory status of the Part 1 wastes (i.e., electric utility high volume coal combustion wastes managed separately from other coal combustion wastes) when used for agricultural purposes. This is because the source of the identified risk was the arsenic content of the high volume coal combustion wastes and not other materials that may be co-managed with them.

Third, we expressed concern with potential impacts from the expanding practice of minefilling coal combustion wastes (i.e., backfilling the wastes into mined areas) and described the

difficulties we had with assessing the impacts and potential risks of this practice. We explained that these difficulties include:

- Determining if elevated contaminants in ground water are due to minefill practices or pre-existing conditions resulting from mining operations,
- Trying to model situations that may be more complex than our groundwater models can accommodate,
- The lack of long-term experience with the recent practice of minefilling, which limits the amount of environmental data for analysis, and
- The site-specific nature of these operations.

Accordingly, we did not present a tentative decision in the RTC for this practice. We indicated that subtitle C regulation would remain an option for minefilling, but that we needed additional information prior to making a final decision. Rather, we solicited additional information from commenters on these and other aspects of minefilling practices and indicated we would carefully consider that information in the formulation of today's decision.

C. How Did Commenters' React to EPA's Tentative Decisions and What Was EPA's Analysis of Their Comments?

Commenter's provided substantial input and information on several aspects of our overall tentative decision to retain the exemption for these wastes from RCRA subtitle C regulation. These aspects are: modeling and risk assessment for the groundwater pathway, documented damage cases, the potential for coal combustion waste characteristics to change as a result of possible future Clean Air Act regulations, proper management of mill rejects (pyrites), agricultural use of coal combustion wastes, the practice of minefilling coal combustion wastes, and our assessment of existing State programs and industry waste management practices.

1. How Did Commenters React to the Groundwater Modeling and Risk Assessment Analyses Conducted by EPA To Support its Findings in the Report to Congress?

Comments. Industry and public interest group commenters submitted detailed critiques of the groundwater model, EPACMTP, that we used for our risk analysis. Industry commenters believe that the model will overestimate the levels of contaminants that may migrate down-gradient from disposed wastes. Environmental groups expressed the opposite belief; that is, that the model underestimates down-gradient chemical concentrations and, therefore, underestimates the potential risk posed by coal combustion wastes.

The breadth and potential implications of the numerous technical comments on the EPACMTP model are significant. Examples of the comments include issues relating to:

- The thermodynamic data that are the basis for certain model calculations,
- The model's ability to account for the effects of oxidation-reduction potential,
- The model's ability to account for competition between multiple contaminants for adsorption sites,
- The model's algorithm for selecting adsorption isotherms,
- The impact of leachate chemistry on adsorption and aquifer chemistry, and
- The model's inherent assumptions about the chemistry of the underlying aquifer.

EPA's Analysis of the Comments. We have been carefully reviewing all of the comments on the model. We determined that the process of thoroughly investigating all of the comments will take substantially more time to complete than is available within the court deadline for issuing this regulatory determination. At this time, we are uncertain of the overall outcome of our analysis of the issues raised in the comments. Accordingly, we have decided not to use the results of our groundwater pathway risk analysis in support of today's regulatory determination on fossil fuel combustion wastes. As explained below, in making today's regulatory determination, we have relied in part on other information related to the potential danger that may result from the management of fossil fuel combustion wastes.

Meanwhile, we will continue with our analysis of comments on the groundwater model and risk analysis. This may involve changing or re-structuring various aspects of the model, if appropriate. It may also include additional analyses to determine whether any changes to the model or modeling methodology would materially affect the groundwater risk analysis results that were reported in the RTC. If our investigations reveal that a re-analysis of groundwater risks is appropriate, we will conduct the analysis and re-evaluate today's decisions as warranted by the re-analysis.

In addition to our ongoing review of comments on the groundwater model, one element of the model—the metals partitioning component called "MINTEQ"—has been proposed for additional peer review. When additional peer review is completed, we will take the findings and recommendations into account in any overall decision to re-evaluate today's regulatory determination.

While not relying on the EPACMTP groundwater modeling as presented in the RTC, we have since conducted a general comparison of the metals levels in leachate from coal combustion wastes to their corresponding hazardous waste toxicity characteristic levels. Fossil fuel wastes infrequently exceed the hazardous waste characteristic. For co-managed wastes, 2% (1 of 51 samples) exceeded the characteristic level. For individual wastes streams, 0% of the coal bottom ash, 2% of the coal fly ash, 3% of the coal flue gas desulfurization, and 7% of the coal boiler slag samples that were tested exceeded the characteristic level. Nevertheless, once we have completed a review of our groundwater model and made any necessary changes, we will reevaluate groundwater risks and take appropriate regulatory actions. We will specifically assess new modeling results as they relate to any promulgated changes in the arsenic MCL.

We also compared leach concentrations from fossil fuel wastes to the drinking water MCLs. In the case of arsenic, we examined a range of values because EPA expects to promulgate a new arsenic drinking water regulation by January 1, 2001. This range includes the existing arsenic MCL (50 ug/l), a lower health based number presented in the FFC Report to Congress (RTC) (0.29 ug/l), and two assumed values in between (10 and 5 ug/l). We examined this range of values because of our desire to bracket the likely range of values that EPA will be considering in its effort to revise the current MCL for arsenic. The National Research Council's 1999 report on Arsenic in Drinking Water indicated that the current MCL is not sufficiently protective and should be revised downward as soon as possible. For this reason, we selected the current MCL of 50 ug/L for the high end of the range because EPA is now considering lowering the current MCL and does not anticipate that the current MCL would be revised to any higher value. We selected the health-based number presented in the Report to Congress for the low end of the range because we believe this represents the lowest concentration that would be considered in revising the current MCL. Because at this time we cannot project a particular value as the eventual MCL, we also examined values in between these low-end and high-end values, a value of 5

ug/L and a value of 10 ug/L, for our analyses supporting today's regulatory determination. The choice of these mid-range values for analyses does not predetermine the final MCL for arsenic.

Those circumstances where the leach concentrations from the wastes exceed the drinking water criteria have the greatest potential to cause significant risks. This "potential" risk, however, may not occur at actual facilities. Pollutants in the leachate of the wastes undergo dilution and attenuation as they migrate through the ground. The primary purpose of models such as EPACMTP is to account for the degree of dilution and attenuation that is likely to occur, and to obtain a realistic estimate of the concentration of contaminants at a groundwater receptor. To provide a view of potential groundwater risk, we tabulated the number of occurrences where the waste leachate hazardous metals concentrations were: (a) Less than the criteria, (b) between 1 and 10 times the criteria, (c) between 10 and 100 times the criteria, and (d) greater than 100 times the criteria. Groundwater models that we currently use, when applied to large volume monofill sources of metals, frequently predict that dilution and attenuation will reduce leachate levels on the order of a factor of 10 under reasonable high end conditions. This multiple is commonly called a dilution and attenuation factor (DAF). For this reason and because lower dilution and attenuation factors (*e.g.*, 10) are often associated with larger disposal units such as those typical at facilities where coal is burned, we assessed the frequency of occurrence of leach concentrations for various hazardous metals which were greater than 10 times the drinking water criteria. Based on current MCLs, there was only one exceedence (for cadmium). However, when we considered the arsenic health based criterion from the RTC, we found that a significant percentage (86%) of available waste samples had leach concentrations for arsenic that were greater than ten times the health-based criterion. Even considering intermediate values closer to the current MCL, a significant percentage of available waste samples had leach concentrations for arsenic that were greater than ten times the criteria (30% when the criterion was assumed to be 5 ug/l, and 14% when the criterion was assumed to be 10 ug/l). Similar concerns also occurred when comparing actual groundwater samples associated with FFC waste units and this range of criteria for arsenic. We believe this is an indication of potential risks from arsenic.

For the above analysis, we used a value equal to half the detection level to deal with those situations where analyses resulted in "less than detection" values that exceeded the MCL criteria. The actual concentration may be as low as zero or up to the detection level. To illustrate the impact of this assumption, an analysis was performed setting the "less than detection" values to zero, and an arsenic criteria at 50 ug/l. While 30% of the values exceeded 10 times the criteria when using half the detection level, exceedences dropped to 13% when "less than detection" values were set to zero.

The comparison of the leachate levels to 10 times MCL criteria is a screening level analysis that supports our concerns, which are primarily based on damage cases and the lack of installed controls (liners and groundwater monitoring). We recognize, however, that prior to issuing a regulation the Agency expects to address the issues raised on the groundwater model and complete a comprehensive groundwater modeling effort. Furthermore, we anticipate that uncertainty regarding whether the arsenic MCL will be amended and to what level, will be more settled prior to regulation of these wastes. These factors could heighten or reduce concerns with regard to the need for Federal regulation of fossil fuel combustion wastes.

2. How Did Commenters React to EPA's Assessment of Documented Damage Cases Presented in the Report to Congress?

Prior to issuing the RTC, we sought and reviewed potential damage cases related to these particular wastes. The activities included:

- A re-analysis of the potential damage cases identified during the Part 1 determination,
- A search of the CERCLA Information System for instances of these wastes being cited as causes or contributors to damages,
- Contacts and visits to regulatory agencies in five states with high rates of coal consumption to review file materials and discuss with state officials the existence of damage cases,
- A review of information provided by the Utility Solid Waste Act Group and the Electric Power Research Institute on 14 co-management sites, and
- A review of information provided by the Council of Industrial Boiler Owners on eight fluidized bed combustion (FBC) facilities.

These activities yielded three damage case sites in addition to the four cases initially identified in the Part 1 determination.[2] Five of the damage cases involved surface impoundments and the two other cases involved landfills. The waste management units in these cases were all older, unlined units. The releases in these cases were confined to the vicinity of the facilities and did not affect human receptors. None of the damages impacted human health. We did not identify any damage cases that were associated with beneficial use practices.

Comments. Public interest group commenters criticized our approach to identifying damage cases associated with the management of fossil fuel combustion (FFC) wastes, stating that EPA did not use the same procedure used to identify damage cases for the cement kiln dust (CKD) Report to Congress. These commenters believed that we were too conservative in our interpretation and determination of FFC damage cases and dismissed cases that commenters believe are relevant instances of damage. For example, these commenters indicated that EPA, in the RTC, did not consider cases where the only exceedences of ground water standards were for secondary MCLs (Maximum Contaminant Levels as established by EPA for drinking water standards). They further indicated that the states often require ground water monitoring only for secondary MCL constituents and that elevated levels of the secondary MCL constituents are an indication of future potential for more serious, health-based standards to be exceeded for other constituents in the wastes, such as toxic metals. Additionally, these commenters stated that the Agency's analysis for damage cases was incomplete and they provided information on 59 possible damage cases involving these wastes, mostly at utilities. Additionally, commenters submitted seven cases of ecological damage that allege damage to mammals, amphibians, fish, benthic layer organisms and plants from co-management of coal combustion wastes in surface impoundments.

Industry commenters cited EPA's finding of so few damage cases as important support for our tentative conclusion to exempt these wastes from hazardous waste regulation. Further, some of the industry commenters indicated that the few damage cases that EPA identified do not represent current

[2] The Part 1 determination identified six cases of documented damages. Upon further reveiw, we determined that two of these cases involve utility coal ash monofills which are covered by the Part 1 determination. However, the other four cases involved remaining wastes that are covered by today's determination.

utility industry management practices, but rather reflect less environmentally protective management practices at older facilities that pre-date the numerous state and federal requirements that are now in effect for managing these wastes.

EPA's Analysis of the Comments. Regarding ecological damage, while we did not identify any ecological damage cases in the RTC associated with management of coal combustion wastes, we reviewed the information on ecological damage submitted by commenters and agree that four of the seven submitted are documented damage cases that involve FFC wastes. All of these involve some form of discharge from waste management units to nearby lakes or creeks. These confirm our risk modeling conclusions as presented in the RTC that there could be adverse impacts on amphibians, birds, or mammals if they were subject to the elevated concentrations of selected chemicals that had been measured in some impoundments. However, no information was submitted in comments that would lead us to alter our conclusion that these threats are not substantial enough to cause large scale, system level ecological disruptions. These damage cases, attributable to runoff or overflow that is already subject to Clean Water Act discharge or stormwater regulations, are more appropriately addressed under the existing Clean Water Act requirements.

Regarding our assessment of damage to ground water, we believe our approach to FFC damage cases in the RTC was consistent with the approach we used for identifying CKD damage cases. For CKD, we established two categories of damage cases—"proven" damage cases and "potential" damage cases. Proven damage cases were those with documented MCL exceedences that were measured in ground water at a sufficient distance from the waste management unit to indicate that hazardous constituents had migrated to the extent that they could cause human health concerns. Potential damage cases were those with documented MCL exceedences that were measured in ground water beneath or close to the waste source. In these cases, the documented exceedences had not been demonstrated at a sufficient distance from the waste management unit to indicate that waste constituents had migrated to the extent that they could cause human health concerns. We do not believe that it would be appropriate to consider an exceedence directly beneath a waste management unit or very close to the waste boundary to be a documented, proven damage case. State regulations typically use a compliance procedure that relies on measurement at a receptor site or in ground water at a point beyond the waste boundary (*e.g.*, 150 meters). While our CKD analysis did not distinguish between primary and secondary MCL exceedences, most CKD damage cases involved a primary MCL constituent. Our principal basis for determining that CKD when managed in land-based units would no longer remain exempt from being regulated as a hazardous waste was our concern about generally poor management practices characteristic of that industry. Our conclusion was further supported by the extremely high percentage of proven damage cases occurring at active CKD sites for which groundwater monitoring data were available.

For FFC, we used the same test of proof to identify possible damage cases. Our FFC analysis drew a distinction between primary and secondary MCL exceedences because we believe this factor is appropriate in weighing the seriousness of FFC damage in terms of indicating risk to human health and the environment. For FFC, in the RTC, we reported only the "proven" damage (*i.e.*, exceedence of a health-based standard such as a primary MCL and measurement in ground water or surface water). As was done in the CKD analysis, we also identified a number of potential FFC damage cases (eleven) which were included in the background documents that support the RTC.

Unlike the primary MCLs, secondary MCLs are not based on human health considerations. (Examples are dissolved solids, sulfate, iron, and chloride for which groundwater standards have been established because of their effect on taste, odor, and color.) While some commenters believe that elevated levels of some secondary MCL parameters such as soluble salts are likely precursors or indicators of future hazardous constituent exceedences that could occur at coal combustion facilities, we are not yet able and will not be able to test their hypothesis until we complete our analysis of all comments received on our groundwater model and risk analysis, which will not be concluded until next year.

Of the 59 damage cases reported by commenters, 11 cases appear to involve exceedences of primary MCLs or other health-based standards as measured either in off-site ground water or in nearby surface waters, the criteria we used in the RTC to identify proven damage cases. Of these eleven cases, two are coal ash monofills which were included in the set of damage cases described by EPA in its record supporting the Part 1 regulatory determination. The remaining nine cases involve the co-management of large volume coal combustion wastes with other low volume and uniquely associated coal combustion wastes. We had already identified five of these nine cases in the RTC. Thus, only four of these eleven damage cases are newly identified to us. Briefly, the four new cases involve:

- Exceedence of a state standard for lead in downgradient ground water at a coal fly ash landfill in New York. There were also secondary MCL exceedences for sulfate, dissolved solids, and iron.
- Primary MCL exceedences for arsenic and selenium in downgradient monitoring wells for a coal ash impoundment at a power plant in North Dakota. There were also secondary MCL exceedences for sulfate and chloride.
- Primary MCL exceedences for fluoride and exceedence of a state standard for boron in downgradient monitoring wells at a utility coal combustion waste impoundment in Wisconsin. There was also a secondary MCL exceedence for sulfate.
- Exceedence of a state standard for boron and the secondary MCL for sulfate and manganese in downgradient monitoring wells at a utility coal combustion landfill in Wisconsin.

We found that in nine of the 11 proven damage cases (including one Superfund site), states took appropriate action to require or conduct remedial activities to reduce or eliminate the cause of contamination. EPA took action in the remaining two cases under the Superfund program

Nineteen of the candidate damage cases submitted by commenters involve either on-site or off-site exceedences of secondary MCLs, but not primary MCLs or other health-based standards. Consistent with our CKD analysis, we consider these cases to be indicative of a potential for damage to occur at these sites because they demonstrate that there has been a release to ground water from the waste management unit.

Regarding the remaining 29 cases submitted by commenters:

- Six involve primary MCL exceedences, but measurements were in ground water either directly beneath the waste or very close to the waste boundary, *i.e.*, no off-site ground water or receptor measurements indicated that ground water standards had been exceeded. Consistent with our analysis of damage cases for cement kiln dust, we consider these six cases to be indicative of a potential for damage to occur at these sites because they demonstrate that there has been a

release to ground water from the waste management unit..

• Eighteen case summary submissions contained insufficient documentation and data for us to verify and draw a conclusion about whether we should consider these to be potential or proven damage cases. Of these 18 cases, commenters claimed that 11 cases involve primary MCL exceedences, and another two involve secondary MCLs, but not primary MCLs. The other five cases lacked sufficient information and documentation to determine whether primary or secondary MCLs are involved. Examples of information critical to assessing and verifying candidate damage cases that was not available for these particular cases include: Identification of the pollutants causing the contamination; identification of where or how the damage case information was obtained (*e.g.*, facility monitoring data, state monitoring or investigation, third party study or analysis); monitoring data used to identify levels of contaminants; and/or sufficient information to determine whether the damages were actually attributable to fossil fuel combustion wastes; and/or location of the identified contamination (*i.e.*, directly beneath the unit or very close to the waste boundary or at a point some distant (*e.g.*, 150 meters) from the unit boundary).

• Three case submissions are cases we identified in the Part 1 determination and involve monofilled utility coal ash wastes. However, as explained in the Report to Congress for the Part 1 determination, EPA determined that there was insufficient evidence to consider them to be documented damage cases.

• One case did not involve fossil fuel combustion wastes.

• One case involved coal combustion wastes and other unrelated wastes in an illegal, unpermitted dump site. This site was handled by the state as a hazardous waste cleanup site.

Our detailed analysis of the damage cases submitted by commenters is available in the public docket for this regulatory determination.

In summary, based on damage case information presented in the RTC and our review of comments, we conclude that there are 11 proven damage cases associated with wastes covered by today's regulatory determination. We identified seven of these damage cases in the RTC, so there are four new proven damage cases that were identified by commenters. All of the sites were at older, unlined units, with disposal occurring prior to 1993. For all 11 of the proven damage cases, either the state or EPA provided adequate follow-up to require or else undertake corrective action. Although these damage cases indicate that coal combustion wastes can present risks to human health and the environment, they also show the effectiveness of states' responses when damages were identified. None of these cases involved actual human exposure.

Additionally, we determined that another 25 of the commenter submitted cases are potential damage cases for the reasons described above. Thus, including the 11 potential damage cases that we identified in the background documents that support the RTC, we are aware of 36 potential damage cases. While we do not believe the latter 36 cases satisfy the statutory criteria of documented, proven damage cases because damage to human health or the environment has not been proven, we believe that these cases may indicate that these wastes pose a "potential" danger to human health and the environment in some circumstances.

In conclusion, while the absolute number of documented, proven damage cases is not large, we believe that the evidence of proven and potential damage should be considered in light of the proportion of new and existing facilities, particularly surface impoundments, that today lack basic environmental controls such as liners and groundwater monitoring. Approximately one-third of coal combustion wastes are managed in surface impoundments. We note that controls such as liners may not be warranted at some facilities, due to site-specific conditions. We acknowledge, however, that our inquiry into the existence of damage cases was focused primarily on a subset of states. Given the volume of coal combustion wastes generated nationwide and the number of facilities that lacked groundwater monitoring as of 1995, there is at least a substantial likelihood other cases of actual and potential damage likely exist. Because we did not use a statistical sampling methodology to evaluate the potential for damage, we are unable to determine whether the identified cases are representative of the conditions at all facilities and, therefore, cannot quantify the extent and magnitude of damages at the national level.

3. What Concerns Did Commenters Express About the Impact of Potential Future Regulation of Hazardous Air Pollutants Under the Clean Air Act on Today's Regulatory Determination?

Comments. In both public hearing testimony and written comments, public interest groups expressed concern about potential changes in the characteristics of these wastes when new air pollution controls are established under the Clean Air Act. The commenters referred to the possible future requirement for hazardous air pollutant controls at coal burning electric utility power plants, which could result in an increased level of metals and possibly other hazardous constituents in coal combustion wastes. The commenters indicated that these increased levels, in turn, could have serious implications for cross-media environmental impacts such as leaching to groundwater and volatilization to the air. The commenters argued that the Agency should include these factors in its current decision making on the regulatory status of coal combustion under the Resource Conservation and Recovery Act.

EPA's Analysis of the Comments. We have carefully considered the issue of cross-media impacts and the commenters' specific concerns that future air regulations could have an adverse impact on the characteristics of coal combustion wastes. We have concluded that it is premature to consider the possible future impact of such new air pollution controls on the wastes that are subject to today's regulatory determination. The Agency plans to issue a regulatory determination in the latter part of 2000 regarding hazardous air pollutant (HAP) controls at coal-burning, power generating facilities. If EPA decides to initiate a rulemaking process, final rulemaking under the Clean Air Act is projected to occur in 2004. Thus, no final decision has been made on what, if any, constituents will be regulated by future air pollution control requirements. Additionally, the regulatory levels of the those specific pollutants that might be controlled and the control technologies needed to attain any regulatory requirements have not yet been identified. Therefore, we believe there is insufficient information at this time for evaluating the characteristics and potential environmental impacts of solid wastes that would be generated as a result of new Clean Air Act requirements.

When any rulemaking under the Clean Air Act proceeds to a point where we can complete an assessment of the likely changes to the character of coal combustion wastes, we will evaluate the implications of these changes relative to today's regulatory determination and take appropriate action.

4. How Did Commenters React to the Findings Presented in the Report to Congress Related to Proper Management of Mill Rejects (Pyrites)?

The RTC explained that we identified situations where pyrite-bearing

materials such as mill rejects (a low volume and uniquely associated waste) that are co-managed with coal combustion wastes may cause or contribute to risks or environmental damage if not managed properly. These materials when managed improperly with exposure to air and water can generate acid. The acid, in turn, can mobilize metals contained in the co-managed combustion wastes. The RTC also explained that the Agency engaged the utility industry in a voluntary program to ensure appropriate management of these wastes. The industry responded by developing technical guidance and a voluntary industry education program on proper management of these wastes.

Comments. Utility industry commenters supported our tentative decision to continue the exemption for coal combustion wastes co-managed with mill rejects from regulation as a hazardous waste. Their position is based primarily on the industry's voluntary implementation of an education program and technical guidance on the proper management of these wastes, as described in the RTC.

Public interest groups and other commenters disagreed with our tentative decision, explaining their belief that such voluntary controls or programs are inadequate. They indicated that coal combustion wastes should be subject to hazardous waste regulations.

EPA's Analysis of the Comments. We remain encouraged by the utility industry program to educate and inform its members by implementing guidance on the proper management of coal mill rejects. However, as pointed out by commenters, there is no assurance that facilities where coal combustion wastes co-managed with pyritic wastes will follow the guidance developed by industry. In light of the number of demonstrated and potential damage cases identified to date, we are concerned that simply relying on voluntary institution of necessary controls would not adequately ensure the protection of human health and the environment. At this time, to ensure that we are aware of all stakeholders views on the adequacy of the control approaches described in the guidance to protect human health and the environment, we are soliciting public comment on the final version of the industry coal mill rejects guidance. This guidance is available in the docket supporting today's decisions.

5. How Did Commenters React to the Findings Presented in the Report to Congress Related to Agricultural Use of Coal Combustion Wastes?

In the RTC, we presented findings on the human health risks associated with agricultural use of coal wastes as an agricultural lime substitute. The pathway examined embodies risks from ingestion of soil and inhalation, and from ingestion of contaminated dairy, beef, fruit and vegetable products. The resultant "high end" cancer risk reported in the RTC was 1×10^{-5} (one in one hundred thousand exposed population), for the child of a farmer. The variables held at high end for this calculation were contaminant concentration and children's soil ingestion. With all variables set to central tendency values, the risk was calculated to be 1×10^{-7} (one in ten million exposed population). We did not identify the presence of any non-cancer hazard of concern. Based on the high end risk, the Agency raised the possibility in the RTC of developing Subtitle C controls or seeking commitments from industry to a voluntary program.

Comments. A number of industry, academic, and federal agency commenters disagreed with our tentative conclusion that some level of regulation may be appropriate for coal combustion wastes when used as an agricultural soil supplement. They indicated that EPA used unrealistically conservative levels for four key inputs used in our risk analysis and that use of a realistic level for any one of these inputs would result in a risk level less than 1×10^{-6}. The four inputs identified by the commenters are: application rate of the wastes to the land, the rate of soil ingestion by children, the bioavailability of arsenic and the phytoavailability of arsenic.

These commenters further recommended that EPA not regulate, but rather encourage voluntary restrictions because:

- Agricultural use of coal combustion wastes creates no adverse environmental impacts and EPA identified no damage cases associated with this practice;
- Agricultural use of these wastes has significant technical and economic benefits;
- Federal controls would be unnecessarily costly and would create a barrier for research and development on the practice;
- Existing regulatory programs are sufficient to control any risks from this practice; and
- The limits suggested in the RTC for arsenic levels in coal combustion wastes are inconsistent with limits applied to other materials used in agriculture.

Public interest groups stated their belief that a voluntary approach would not be sufficiently protective of human health and the environment. They believe the Agency should apply restrictions on the use of these wastes in agriculture because the Agency's analyses of the risks and benefits of this practice were inadequate. They further recommended that EPA should prohibit the land application of coal combustion wastes generated by conventional boilers, and make the arsenic limitation of EPA's sewage sludge land application regulations applicable to the land application of coal combustion wastes generated by fluidized bed combustors, which add lime as part of the combustion process.

EPA's Analysis of Comments. After reviewing these comments and supporting information provided by the commenters, we concluded that a revised input into the model for children's soil ingestion rate is appropriate. Based on further review of the Agency's Exposure Factors Handbook (EFH), we decided to model a children's soil ingestion rate of 0.4 grams per day instead of the 1.4 grams per day that underlay the results given in the RTC.

Many studies have been conducted to estimate soil ingestion by children. Early studies focused on dirt present on children's hands. More recently, studies have focused on measuring trace elements in soil and then in feces as a function of internal absorption. These measurements are used to estimate amounts of soil ingested over a specified time period. The EFH findings for children's soil ingestion are based on seven key studies and nine other relevant studies that the Agency reviewed on this subject. These studies showed that mean values for soil ingestion ranged from 39 mg/day to 271 mg/day with an average of 146 mg/day. These results are characterized for studies that were for short periods with little information reported for pica behavior. To account for longer periods of time, the EFH reviewed the upper percentile ranges of the data studied and found ingestion rates that ranged from 106 mg/day to 1,432 mg/day with an average of 383 mg/day for soil ingestion. Rounding to one significant figure, the EFH recommended an upper percentile children's soil ingestion rate of 400 mg/day. The Agency believes that this recommendation is the best available information to address children's exposure through the soil ingestion route. Reducing the ingestion rate to the EFH handbook recommended level of

400 mg/day reduced the calculated risk to $3.4 \times 10{-}6$ for this one child risk situation and suggests that agricultural use of FFC wastes does not cause a risk of concern.

EPA believes its inputs for phytoavailability are accurate, although there are studies that suggest phytoavailability will decrease over time. Arsenic bioavailability is a function of all sources of arsenic and EPA believes it has characterized this accurately. However, as noted elsewhere, arsenic toxicity is now being studied by the Agency in conjunction with a proposed new arsenic MCL and may necessitate re-visiting today's judgement on agricultural use.

Our technical analysis that resulted in revised risk is explained in a document titled Reevaluation of Non-groundwater Pathway Risks from Agricultural Use of Coal Combustion Wastes, which is available in the docket for this action.

The comment on inappropriateness of application frequency was caused by a misunderstanding of the language in the RTC. The rate used was actually every two or three years, not two or three times per year.

Two ongoing studies of wastes of potential use as agricultural soil supplements relate to the use of FFC wastes for this purpose. Although these did not play a direct role in EPA's decision regarding FFC wastes, they are summarized below and may play a role in any future review of today's decision.

(1) On August 20, 1999, the agency proposed risk-based standards for cement kiln dust when used as a liming agent (see 64 FR 45632; August 20, 1999). This analysis was completed in 1998 just prior to our completion of the analysis of FFC wastes when used as agricultural supplements. The CKD analysis underwent a special peer review by a standing committee that is used by the Department of Agriculture. We were not able to respond to the peer review comments in either the CKD proposal or in our assessment for fossil fuel combustion wastes prior to publication of today's regulatory determination. The comment period for the CKD proposal closed on February 17, 2000, and we will soon begin our review and analyses of the public and peer review comments.

(2) In December 1999, EPA proposed new risk based standards for the use of municipal sewage sludge under section 503 of the Clean Water Act (the "503 standards"). It is important to note that municipal sludge has unique properties, application rates, and uses. This makes it inappropriate to transfer the 503 standards directly. Even though the standards cannot be used directly, there may be interest in the risk assessment methodologies used to support the development of these standards. We disagree that it is appropriate to establish an arsenic limitation for coal combustion ash when used for agricultural purposes equivalent to that contained in the EPA sewage sludge land application regulations. The organic nature of sewage sludge makes it behave very differently from inorganic wastes such as coal combustion wastes.

We conclude at this time that arsenic levels in coal combustion wastes do not pose a significant risk to human health when used for agricultural purposes. We expect to continue to review and refine the related risk assessments noted above, and will consider comments on the Agency's CKD and municipal sludge proposals, as well as new scientific developments related to this issue such as additional peer review of the EPA MINTEQ model that was used as a component of our risk analysis. If these efforts lead us to a different understanding of the risks posed by coal combustion wastes when used as a substitute for agricultural lime, we will take appropriate action to reevaluate today's regulatory determination.

6. How Did Commenters React to the Findings Presented in the Report to Congress Related to Minefilling of Coal Combustion Wastes?

In the RTC, we explained that we had insufficient information to adequately assess the risks associated with the use of coal combustion wastes to fill surface and underground mines, whether the mines are active or abandoned. Accordingly, we did not present a tentative conclusion in the RTC with respect to the use of coal combustion wastes for disposal in active mines or for reclamation of mines. However, we did indicate that regulation of minefilling under hazardous waste rulemaking authority would remain an option for minefilling, but that we needed additional information prior to making a final decision. Thus, we solicited additional information on specific minefilling techniques, problems that may be inherent in this management practice, risks posed by this practice, existing state regulatory requirements, and environmental monitoring data. We indicated that we would consider any comments and new information on minefilling received in comments and would address this management practice in today's regulatory determination.

Comments. A number of commenters responded to our request by providing reports on individual case studies, including minefilling in underground as well as in surface mines, descriptions of current state regulatory requirements that address this practice, monitoring data, and information about risk analysis techniques.

Industry commenters and one federal agency supported our decision to study the issue further and not attempt to estimate the risks posed by this practice using existing methods. Further, numerous industry, academic, state agency, and federal agency commenters encouraged EPA not to adopt national regulations or voluntary restrictions on minefilling because: (a) Nationwide standards would not be conducive to the site-specific evaluations needed to appropriately control these operations; (b) minefilling creates no adverse environmental impacts and EPA identified no damage cases associated with this practice; (c) existing state and federal regulatory programs and industry practices are sufficient to control any risks from this practice, and (d) federal standards would be an unreasonable interference with states' authorities.

Additionally, several industry representatives, legislators, and state mining and environmental agencies mentioned that this practice, when used to remediate abandoned mine lands, will produce considerably greater environmental benefits than risks. Further, they maintained that minefilling is a relatively inexpensive means to stop or even reverse the environmental damage caused by old mining practices. They indicated that through remediation by minefilling, these lands frequently can be returned to productive use. These commenters recommended no additional regulation of this practice.

Public interest groups and others believe we should regulate minefilling under RCRA subtitle C or prohibit it for several reasons including weaknesses in existing state and federal regulatory programs, the poor practices and performance at existing minefilling operations, and potential impacts on potable water sources. Commenters stated that state programs effectively allow open dumps without any design or construction standards. For minefilling, one commenter urged EPA to defer to state regulations only if the Agency specifically found existing state regulations to be adequate.

EPA's Analysis of Comments. We agree with commenters that it is inappropriate to estimate the risks posed by minefilling using the existing methods that we employed to conduct risk analyses for disposal of coal combustion wastes in landfills and impoundments. We found that the

groundwater models available to us are unsuitable for estimating risks from minefills because, for example, they are not able to account for conditions such as fractured flow that are typical of the hydrogeology associated with mining operations. In addition, as explained above, EPA's primary groundwater model, EPACMTP, is now undergoing careful review on the basis of comments received on the Report to Congress.

We are aware that the use of coal combustion wastes to conduct remediation of mine lands can improve conditions caused by mining activities. We also recognize that this often is the lowest cost option for conducting these remediation activities. We generally encourage the practice of remediating mine lands with coal combustion wastes when minefilling is conducted properly and when there is adequate oversight of the remediation activities. We are also aware that relatively few states currently operate regulatory or other programs that specifically address minefilling, and that many states where this practice is occurring do not have programs in place. Based on our review of information on existing state minefill programs, we find serious gaps such as a lack of adequate controls and restrictions on unsound practices, *e.g.*, no requirement for groundwater monitoring and no control or prohibitions on waste placement in the aquifer.

At this time, we cannot reach definitive conclusions about the adequacy of minefilling practices employed currently in the United States and the ability of government oversight agencies to ensure that human health and the environment are being adequately protected. For example, it is often impossible to determine if existing groundwater quality has been impacted by previous mining operations or as a result of releases of hazardous constituents from the coal combustion wastes used in the minefilling applications. Additionally, data and information submitted during the public comment period indicate that if the chemistry of the mine relative to the chemistry of the coal combustion wastes is not properly taken into account, the addition of coal combustion wastes to certain environmental settings can lead to an increase in hazardous metals released into the environment. This phenomena has been substantiated by data available to the Agency that show when pyrites, which can cause acid generation, have been improperly co-managed with coal combustion wastes, high levels of metals, especially arsenic, have leached from the wastes.

Finally, we concluded in our recent study of disposal of cement kiln dust that placement of cement kiln dust directly in contact with ground water led to a substantially greater release of hazardous metal constituents than we predicted would occur when such placement in ground water did not occur. We are aware of situations where coal combustion wastes are being placed in direct contact with ground water in both underground and surface mines. This could lead to increased releases of hazardous metal constituents as a result of minefilling. Thus, if the complexities related to site-specific geology, hydrology, and waste chemistry are not properly taken into account when minefilling coal combustion wastes, we believe that certain minefilling practices have the potential to degrade, rather than improve, existing groundwater quality and can pose a potential danger to human health and the environment. Subsequent impacts on human health would depend in part on the proximity of drinking water wells, if any, to elevated levels of metals in the water. To date we are unaware of any proven damage cases resulting from minefilling operations.

7. How Did Commenters React to EPA's Tentative Reliance on State Programs and Voluntary Industry Implementation of Improved Management Practices To Mitigate Potential Risks From Coal Combustion Waste Management?

In the RTC, EPA considered retaining the exemption for coal combustion wastes disposed in surface impoundments and landfills and for mill rejects (pyrites) that are managed with those wastes. The Agency cited a reliance on state programs that have improved substantially over the past 10 to 15 years and continue to improve, combined with voluntary industry implementation of guidance for improved management practices to mitigate risk. In addition, we stated that we would continue to work with industries and states to promote and monitor improvements.

To assess the adequacy of state programs and the potential for voluntary implementation of improved practices, we looked at the current number of facilities with liners and groundwater monitoring (which may reflect voluntary industry upgrading as well as state requirements), and the number of state programs that currently have authority to require a broad range of environmental controls. For units operating as of 1995, we found that among utilities, slightly more than half of the disposal units were surface impoundments. Of these impoundments, 38 percent had groundwater monitoring and 26 percent had liners. Eighty-five percent of the utility landfills had groundwater monitoring and 57 percent had liners. For non-utility landfills, 94 percent had groundwater monitoring, and between 16 percent and 52 percent had liners. Between 1985 and 1995, 75 percent of new landfills and 60 percent of new surface impoundments within the utility sector had been lined. We have no information regarding the percentage of units built since 1995 (the date when the study we have relied on ended) that have liners or groundwater monitoring programs.

In looking at state programs, we found that for landfills, more than 40 states have the authority to require permits, siting restrictions, liners, leachate collection, groundwater monitoring, closure controls, and cover/dust controls. Forty-three states can require liners and 46 can require groundwater monitoring compared to 11 and 28 states, respectively, in the 1980's. For surface impoundments, more than 40 states have authority to require permits, siting restrictions, liners, groundwater monitoring, and closure control; 33 can require leachate collection (there is no earlier comparison data for surface impoundments). Forty-five states can require liners and 44 can require groundwater monitoring for impoundments.

Comments. Industry and state agency commenters generally stated that the Agency presented an accurate and comprehensive analysis of state programs and that existing state regulations are adequate. Public interest commenters raised many concerns about the adequacy of state programs: Either they do not have provisions to cover all elements of a protective program; they do not consistently impose the requirements for which they have authority; and/or enforcement is lax. Evidence commenters cited for the inadequacy of state programs included grandfathering for older management units and an apparent lack of controls for surface impoundments. For these reasons, some found EPA's review of state programs inaccurate or incomplete.

Public interest commenters were also skeptical of programs or efforts that rely on voluntary industry implementation because adherence to guidance is not guaranteed. Several commenters, primarily from industry, urged the Agency not to regulate pyrite co-management because of the voluntary, industry-developed guidance.

EPA's Analysis of Comments. We believe that state programs have, in fact, substantially improved over the last 15

years or so. A high percentage of states have authority to impose protective management standards on surface impoundments and landfills, especially for groundwater monitoring, liners, and leachate collection, which mitigate potential risks posed by these units. Over 40 states today have these authorities (33 states have authority to require leachate collection in surface impoundments). When authority under state groundwater and drinking water regulations are considered, some commenters have suggested that nearly all states can address the management of these wastes. In addition, we believe that the trend to line and install groundwater monitoring for new surface impoundments and landfills is positive. However, as some commenters noted, we acknowledge that our state program review looked at the authorities available to states and their overall regulatory requirements, not the specific requirements applied to given facilities, which could be more or less stringent. In addition, we recognize that individual state programs may have some gaps in coverage, as indicated below, so that some controls may not now be required at coal combustion waste impoundments and landfills. We would expect to see some differences in the application of requirements, depending on site-specific conditions.

One consistent trend that raises concern for the Agency is that controls are much less common at surface impoundment than at landfills. Even for newer units at utilities (constructed between 1985 and 1995), liners are used at 75 percent of landfills and only 60 percent of surface impoundments. Also at newer units, groundwater monitoring is implemented at 88 percent of landfills and at only 65 percent of surface impoundments. Approximately one-third of coal combustion wastes were managed in surface impoundments in 1995. Hydraulic pressure in a surface impoundment increases the likelihood of releases. We believe that groundwater monitoring, at a minimum, in existing as well as new impoundments, is a reasonable approach to monitor performance of the unit and a critical first step to addressing groundwater damage that may be caused by the unit. As of 1995, 38 percent of currently operating utility surface impoundments had groundwater monitoring and only 26 percent had liners.

While liners and groundwater monitoring are applied more frequently at landfills, there are still many utility and non-utility landfills that do not have liners. In addition, 15 percent of utility landfills do not have groundwater monitoring, and some six percent of non-utility landfills do not have groundwater monitoring, based on a limited survey.

The utility industry through its trade associations has demonstrated a willingness to work with EPA to develop protective management practices, and individual companies have committed to upgrading their own practices. However, the Agency recognizes that participation in voluntary programs is not assured. Also, individual facilities and companies may not implement protective management practices and controls, for a variety of reasons, in spite of their endorsement by industry-wide groups.

We see a trend toward significantly improving state programs and voluntary industry investment in liners and groundwater monitoring that we believe can mitigate potential risks over time. However, we identified significant gaps in controls already in place and, in particular, requirements that may be lacking in some states, either in authority to impose the requirements or potentially in exercising that authority. In response to comments, we further analyzed risks posed by coal combustion wastes taking into account waste characteristics and potential and actual damage cases. Based on these analyses, we concluded that coal combustion wastes, in certain circumstances, could unnecessarily increase risks to human health and the environment, and that a number of proven damages have been documented, and that more are likely if we had been able to conduct a more thorough search of available state records and if groundwater monitoring data were available for all units. We recognize there will probably continue to be some gaps in practices and controls and are concerned at the possibility that these will go unaddressed. We also believe the time frame for improvement of current practices is likely to be longer in the absence of federal regulations.

D. What Is the Basis for Today's Decisions?

Based on our collection and analysis of information reflecting the criteria in section 8002(n) of RCRA that EPA must consider in making today's regulatory determination, materials developed in preparing the RTC and supportive background materials, existing state and federal regulations and programs that affect the management of coal combustion wastes, and comments received from the public on the findings we presented in the RTC, we have concluded the following:

1. Beneficial Uses

To the extent coal combustion wastes are used for beneficial purposes, we believe they should continue to remain exempt from being regulated as hazardous wastes under RCRA. Beneficial purposes include waste stabilization, beneficial construction applications (*e.g.*, cement, concrete, brick and concrete products, road bed, structural fill, blasting grit, wall board, insulation, roofing materials), agricultural applications (*e.g.*, as a substitute for lime) and other applications (absorbents, filter media, paints, plastics and metals manufacture, snow and ice control, waste stabilization). For the reasons presented in section 3 below, we are separately addressing the use of coal combustion wastes to fill surface or underground mines.

For beneficial uses other than minefilling, we have reached this decision because: (a) We have not identified any beneficial uses that are likely to present significant risks to human health or the environment; and (b) no documented cases of damage to human health or the environment have been identified. Additionally, we do not want to place any unnecessary barriers on the beneficial use of coal combustion wastes so that they can be used in applications that conserve natural resources and reduce disposal costs.

Disposal can be burdensome and fails to take advantage of beneficial characteristics of fossil fuel combustion wastes. About one-quarter of the coal combustion wastes now generated are diverted to beneficial uses. Currently, the major beneficial uses of coal combustion wastes include: Construction (including building products, road base and sub-base, blasting grit and roofing materials) accounting for approximately 21%; sludge and waste stabilization and acid neutralization accounting for approximately 3%; and agricultural use accounting for 0.1%. Based on our conclusion that these beneficial uses of coal combustion wastes are not likely to pose significant risks to human health and the environment, we support increases in these beneficial uses of coal combustion wastes.

Off-site uses in construction, including wallboard, present low risk due to the coal combustion wastes being bound or encapsulated in the construction materials or because there is low potential for exposure. Use in waste and sludge stabilization and in acid neutralization are either regulated (under RCRA for hazardous waste stabilization or when placed in

municipal solid waste landfills, or under the Clean Water Act in the case of municipal sewage sludge or wastewater neutralization), or appear to present low risk due to low exposure potential. While in the RTC, we expressed concern over risks presented by agricultural use, we now believe our previous analysis assumed unrealistically high-end conditions, and that the risk, which we now believe to be on the order of 10^{-6}, does not warrant national regulation of coal combustion wastes that are used in agricultural applications.

In the RTC, we were not able to identify damage cases associated with these types of beneficial uses, nor do we now believe that these uses of coal combustion wastes present a significant risk to human health or the environment. While some commenters disagreed with our findings, no data or other support for the commenters' position was provided, nor was any information provided to show risk or damage associated with agricultural use. Therefore, we conclude that none of the beneficial uses of coal combustion wastes listed above pose risks of concern.

2. Disposal in Landfills and Surface Impoundments

In this section, we discuss available information regarding the potential risks to human health and the environment from the disposal of coal combustion wastes into landfills and impoundments. In sum, our conclusion is these wastes can pose significant risks when mismanaged and, while significant improvements are being made in waste management practices due to increasing state oversight, gaps in the current regulatory regime remain.

We have determined that the establishment of national regulations is warranted for coal combustion wastes when they are disposed in landfills and surface impoundments, because: (a) The composition of these wastes has the potential to present danger to human health and the environment under some circumstances and "potential" damage cases identified by EPA and commenters, while not definitively demonstrating damage from coal combustion wastes, lend support to our conclusion that these wastes have the potential to pose such danger; (b) we have identified eleven cases of proven damage to human health and the environment by improper management of these wastes when land disposed; (c) while industry management practices have improved measurably in recent years, there is sufficient evidence these wastes are currently being managed in a significant number of landfills and surface impoundments without proper controls in place, particularly in the area of groundwater monitoring; and (d) while there have been substantive improvements in state regulatory programs, we have also identified significant gaps either in states' regulatory authorities or in their exercise of existing authorities. Moreover, we believe that the costs of complying with regulations that specifically address these problems, while large in absolute terms, are only a small percentage of industry revenues.

When we considered a tailored subtitle C regulatory approach, we estimated the potential costs of regulation of coal combustion wastes (including the utility coal combustion wastes addressed in the 1993 Part 1 determination) to be $1 billion per year. While large in absolute terms, we estimate that these costs are less than 0.4 percent of industry sales. Our preliminary estimate of impact on profitability is a function of facility size, among other factors. For the larger facilities, we estimate that reported pre-tax profit margins of about 13 percent may be reduced to about 11 percent. For smaller facilities, margins may be reduced from about nine percent to about seven percent.

We identified that the constituents of concern in these wastes are metals, particularly hazardous metals. We further identified that leachate from various large volume wastes generated at coal combustion facilities infrequently exceed the hazardous waste toxicity characteristic, for one or more of the following metals: arsenic, cadmium, chromium, lead, and mercury. Additionally, when we compared waste leachate concentrations for hazardous metals to their corresponding MCLs (or potential MCLs in the case of arsenic), we found that there was a potential for risk as a result of arsenic leaching from these wastes. The criteria we examined included the existing arsenic MCL, a lower health based number presented in the RTC, and two assumed values in between. We examined this range of values because, as explained earlier in this notice, EPA is in the process of revising the current MCL for arsenic to a lower value as a result of a detailed study of arsenic in drinking water and we wanted to assess the likely range of values that would be under consideration by EPA. Once we have completed a review of our groundwater model and made necessary changes, we will reevaluate the potential risks from metals in coal combustion wastes and compare any projected groundwater contamination to the MCLs that exist at that time.

We also identified situations where the improper management of mill rejects, a low volume and uniquely associated waste, with high volume coal combustion wastes has the potential to cause releases of higher quantities of hazardous metals. When these wastes are improperly managed, the mill rejects can create an acidic environment which enhances leachability and can lead to the release of hazardous metals in high concentrations from the co-managed wastes to ground water or surface waters. Thus, our analysis of the characteristics of coal combustion wastes leads us to conclude that these wastes have the potential to pose risk to human health and the environment. We also plan to address such waste management practices in our subsequent rulemaking.

Additionally, we identified 11 proven damage cases that documented disposal of coal combustion wastes in unlined landfills or surface impoundments that involved exceedences of primary MCLs or other health-based standards in ground water or drinking water wells. Three of the proven damage cases were on the EPA Superfund National Priorities List. Although these damage cases indicate that coal combustion wastes can present risks to human health and the environment, they also show the effectiveness of states' responses when damages were identified. All of the sites were at older, unlined units, with disposal occurring prior to 1993. None of these cases involved actual human exposure. Given the large number of facilities that do not now conduct groundwater monitoring, we have a concern that additional cases of damage may be undetected.

As detailed in the RTC and explained earlier in this notice, we identified that the states and affected industry have made considerable progress in recent years toward more effective management of coal combustion wastes. We also identified that the ability for most states to impose specific regulatory controls for coal combustion wastes has increased almost three-fold over the past 15 years. Forty-three states can now impose a liner requirements at landfills whereas 15 years ago, 11 had the same authority. In addition to regulatory permits, the majority of states now have authority to require siting controls, liners, leachate collection, groundwater monitoring, closure controls, and other controls and requirements for surface impoundments and landfills.

Nonetheless, we have concluded that there are still gaps in the actual application of these controls and

requirements, particularly for surface impoundments. While most states now have the appropriate authorities and regulations to require liners and groundwater monitoring that would reduce or minimize the risks that we have identified, we have also identified numerous situations where these controls are not being applied. For example, only 26 percent of utility surface impoundments and 57 percent of utility landfills have liner systems in place. We have insufficient information to determine whether the use of these controls is significantly different for non-utility disposal units, due to a small sample size.

While many of these unlined units may be subject to grandfathering provisions that allow them to continue to operate without being lined, or may not need to be lined due to site-specific conditions, we are especially concerned that a substantial number of units do not employ groundwater monitoring to ensure that if significant releases occur from these unlined units, they will be detected and controlled. In 1995, groundwater was monitored at only 38 percent of utility surface impoundments. While monitoring is more frequent at landfills, there are still many units at which releases of hazardous metals could go undetected. For example, of the approximately 300 utility landfills, 45 newer landfills (15%) do not monitor ground water. We are concerned that undetected releases could cause exceedences of drinking water or other health-based standards that may threaten public health or groundwater and surface water resources. Thus, we conclude that national regulations would lead to substantial improvements in the management of coal combustion wastes.

3. Minefilling

We have determined that the establishment of national regulations is warranted for coal combustion wastes when they are placed in surface or underground mines because: (a) We wind that these wastes when minefilled have the potential to present a danger to human health and the environment, (b) minefilling of these wastes has been an expanding practice and there are few states that currently operate comprehensive programs that specifically address the unique circumstances of minefilling, making it more likely that any damage to human health or the environment would go unnoticed or unaddressed, and (c) we believe that the cost of complying with regulations that address these potential dangers may not have a substantial impact on this practice because minefilling continues to grow in those few states that already have comprehensive programs.

We recognize that at this time, we cannot quantify the nature of damage that may be occurring or may occur in the future as a result of using coal combustion wastes as minefill. It is often impossible to determine if existing groundwater quality has been impacted by previous mining operations or as a result of releases of hazardous constituents from the coal combustion wastes used in minefilling applications. We have not as yet identified proven damage cases resulting from the use of coal combustion wastes for minefilling.

We also acknowledge that when the complexities related to site-specific geology, hydrology, waste chemistry and interactions with the surrounding matrix, and other relevant factors are properly taken into account, coal combustion wastes used as minefill can provide significant benefits. However, when not done properly, minefilling has the potential to contaminate ground water to levels that could damage human health and the environment. Based on materials submitted during the public comment period, coal combustion wastes used as minefill can lead to increases in hazardous metals released into ground water if the acidity within the mine overwhelms the capacity of the coal combustion wastes to neutralize the acidic conditions. This is due to the increased leaching of hazardous metals from the wastes. The potential for this to occur is further supported by data showing that management of coal combustion wastes in the presence of acid-generating pyritic wastes has caused metals to leach from the combustion wastes at much higher levels than are predicted by leach test data for coal combustion wastes when strongly acidic conditions are not present. Such strongly acidic conditions often exist at mining sites.

Although we have identified no damage cases involving minefilling, we are also aware of situations where coal combustion wastes are being placed in direct contact with ground water in both surface and underground mines. We concluded in our recent study of cement kiln dust management practices that placement of cement kiln dust in direct contact with ground water led to a substantially greater release of hazardous metals than we predicted would occur when the waste was placed above the water table. For this reason, we find that there is a potential for increased releases of hazardous metals as a result of placing coal combustion wastes in direct contact with groundwater. Also, there are damage cases associated with coal combustion wastes in landfills. The Agency believes it is reasonable to be concerned when similar quantities of coal combustion wastes are placed in mines, which often are not engineered disposal units and in some cases involve direct placement of wastes into direct contact with ground water.

We are concerned that government oversight is necessary to ensure that minefilling is done appropriately to protect human health and the environment, particularly since minefilling is a recent, but rapidly expanding use of coal combustion wastes. Government oversight has not yet "caught up" with the practice consistently across the country. There are some states that have programs that specifically address minefilling practices. We are likely to find that their programs or certain elements of their programs could serve as the basis for a comprehensive, flexible set of national management standards that ensure protection of human health and the environment. We also believe that these state programs will provide valuable experience in coordinating with SMCRA program requirements. However, at this time, few of the programs are comprehensive. Commenters pointed out, and we agree, there are significant gaps in other states. We believe that additional requirements for long-term groundwater monitoring, and controls on wastes placed directly into groundwater might be prudent.

E. What Approach Will EPA Take in Developing National Regulations?

We will not promulgate any regulations for beneficial uses other than minefilling. We do not wish to place any unnecessary barriers on the beneficial use of fossil fuel combustion wastes so that they can be used in applications that conserve natural resources and reduce disposal costs.

Once we concluded there is a need for some form of national regulation of coal combustion wastes disposed in landfills and surface impoundments and used as minefill, we considered two approaches. One approach would involve promulgating subtitle D regulations, pursuant to sections 1008 and 4004(a) of RCRA, that would contain criteria defining landfills and impoundments that would constitute "sanitary landfills." Any facility that failed to meet the standards would constitute an open dump, which is prohibited by section 4005(a) of RCRA. Such standards would set a consistent baseline for protective management throughout the country. We would also work with the Department of Interior,

Office of Surface Mining to evaluate whether equivalent protectiveness for minefilling could be afforded by relying on revision of existing SMCRA regulations or by relying on a combination of RCRA and SMCRA authorities.

The second approach was to promulgate regulations pursuant to Subtitle C of RCRA, that would have been similar to our recent proposed regulation of cement kiln dust. Following this approach, EPA would develop national management standards based on the Subtitle D open dump criteria as discussed above, as well as a set of tailored Subtitle C requirements promulgated pursuant to RCRA section 3004(x). If the wastes were properly managed in accordance with the subtitle D-like standards, they would not be classified as hazardous wastes. When they were not properly managed, they would become listed hazardous wastes subject to tailored subtitle C standards. This scheme would be effective in each state authorized for the hazardous waste program when that state modified its hazardous waste program to incorporate the listing.

Under this approach, after states have adopted the contingent listing, facilities that have egregious or repeated violations of the management standards would be moved into the subtitle C program (subject to the tailored RCRA 3004 (x) requirements, rather than to the full set of subtitle C requirements). Thus, EPA would have authority to enforce the management standards.

The decision whether to establish regulations under subtitle C or D of RCRA for disposal of coal combustion wastes in landfills and surface impoundments and when minefilled was a difficult one. EPA believes that, in this case, either approach would ensure adequate protection of public health and the environment. Either subtitle C or D provides EPA with the authority to prescribe protective standards for the management of these wastes. Moreover, as described above, the standards that EPA would adopt under either regime, because of the flexibility provided by section 3004 (x), would be substantively the same. Also, under either approach, a facility that fails to comply with the standards is in violation of RCRA—in the case of subtitle C, the facility would be in violation of the tailored standards promulgated under section 3004(x). In the case of subtitle D, the facility would be in violation of the prohibition in section 4005(a) of RCRA against "open dumping." The prohibition against open dumping is, however, enforceable only by private citizens and states, not EPA. Management standards established under the authority of subtitle C (including tailored section 3004(x) standards) are also enforceable by EPA. It appears that more than 40 states already have sufficient authority to implement most, if not all of the national standards we contemplate would be appropriate for surface impoundments and landfills. One difference between the two regimes may be that states could cite revised subtitle D standards as a basis for exercising their existing authorities more vigorously, potentially promoting swifter adoption of appropriate controls for surface impoundments and landfills. In addition, subtitle D standards would be applicable and enforceable by citizens as soon as the federal rule becomes effective. subtitle C standards in contrast, would not apply until incorporated into state subtitle C programs. For minefilling, we would also explore SMCRA as a possible mechanism to speed implementation, even if we relied on subtitle D to establish protective standards, because minefilling operations already are subject to SMCRA permitting authority.

Taking into account the common and distinct features of these alternative approaches, EPA believes at this time, based on the current record, that subtitle D regulations are the more appropriate mechanism for a number of reasons. In view of the very substantial progress that states have made in regulating disposal of fossil fuel combustion wastes in surface impoundments and landfills in recent years, as well as the active role that this industry has played recently in facilitating responsible waste disposal practices, EPA believes that subtitle D controls will provide sufficient clarity and incentive for states to close the remaining gaps in coverage, and for facilities to ensure that their wastes are managed properly.

For minefilling, although we have considerable concern about certain current practices (*e.g.*, placement directly into groundwater), we have not yet identified a case where placement of coal wastes can be determined to have actually caused increased damage to ground water. In addition, there is a federal regulatory program—SMCRA—expressly designed to address environmental risks associated with coal mines. Finally, given that states have been diligent in expanding and upgrading programs for surface impoundments and landfills, we believe they will be similarly responsive in addressing environmental concerns arising from this emerging practice. In short, we arrive at the same conclusions, for substantially the same reasons, for this practice as we did for landfills and surface impoundments: that subtitle D controls, or upgraded SMCRA controls or a combination of the two, should provide sufficient clarity and incentive to ensure proper handling of this waste when minefilled. Having determined that subtitle C regulation is not warranted for all other management practices, EPA does not see a basis in the record for carving this one practice out for separate regulatory treatment.

Once these subtitle D regulations are effective, facilities would be subject to citizen suits for any violation of the standards. If EPA were addressing wastes that had not been addressed by the states (or the federal government) in the past, or an industry with wide evidence of irresponsible solid waste management practices, EPA may well conclude that the additional incentives for improvement and compliance provided by the subtitle C scheme—the threat of federal enforcement and the stigma associated with improper management of RCRA subtitle C waste—were necessary. But the record before us indicates that the structure and the sanctions associated with a subtitle D approach (or a SMCRA approach if EPA determines it is equivalent) should be sufficient.

We also see a potential downside to pursuing a subtitle C approach. Section 8002(n)(8) directs us to consider, among other factors, "the current and potential utilization of such materials." Industry commenters have indicated that they believe subjecting any coal combustion wastes to a subtitle C regime would place a significant stigma on these wastes, the most important effect being that it would adversely impact beneficial reuse. As we understand it, the concern is that, even though beneficially reused waste would not be hazardous under the contemplated subtitle C approach, the link to subtitle C would nonetheless tend to discourage purchase and re-use of the wastes or products made from the wastes. We do not wish to place any unnecessary barriers on the beneficial uses of these wastes, because they conserve natural resources, reduce disposal costs and reduce the total amount of waste destined for disposal. States and industry have also expressed concern that regulation under subtitle C could cause a halt in the use of coal combustion wastes to reclaim abandoned and active mine sites. If this were to occur, it would be unfortunate in that when done properly, we recognize this practice can lead to substantial environmental benefits. EPA believes the contingent management scheme we discussed should diminish

any stigma that might be associated with the subtitle C link. Nonetheless, we acknowledge the possibility that the approach could have unintended consequences. We would be particularly concerned about any adverse effect on the beneficial re-use market for these wastes because more than 23 percent (approximately 28 million tons) of the total coal combustion waste generated each year is beneficially reused and an additional eight percent (nine million tons) is used for minefilling. EPA believes that such reuse when performed properly, is by far the environmentally preferable destination for these wastes, including when minefilled. Normally, concerns about stigma are not a deciding factor in EPA's decisions under RCRA, given the central concern under the statute for protection of human health and the environment. However, given our conclusion that the subtitle D approach here should be fully effective in protecting human health and the environment, and given the large and salutary role that beneficial reuse plays for this waste, concern over stigma is a factor supporting our decision today that subtitle C regulation is unwarranted in light of our decision to pursue a subtitle D approach.

As we proceed with regulation development, we will also take enforcement action under RCRA section 7003 when we identify cases of imminent and substantial endangerment. We will also use Superfund remedial and emergency response authorities under the Comprehensive Environmental Response Compensation and Liabilities Act (CERCLA), as appropriate, to address damages that result in risk to human health and the environment. We will also take into account new information as it becomes available. We are awaiting a National Academy of Sciences report scheduled to be released in June 2000. This report will present a comprehensive review of mercury and recommendations on appropriate adverse health effects levels for this constituent. We believe that this report will enhance our understanding of the risks due to exposure to mercury, and we will review and assess its implications for today's decision on fossil fuel combustion wastes. These efforts may result in a re-evaluation of the risks posed by managing coal combustion wastes.

3. What Is the Basis for EPA's Regulatory Determination for Oil Combustion Wastes?

A. What Is the Agency's Decision Regarding the Regulatory Status of Oil Combustion Wastes and Why Did EPA Make This Decision?

We have determined that it is not appropriate to issue regulations under subtitle C of RCRA applicable to oil combustion wastes because: (a) We have not identified any beneficial uses that are likely to present significant risks to human health or the environment; and (b) except for a limited number of unlined surface impoundments, we have not identified any significant risks to human health and the environment associated with any waste management practices.

We intend to work with the State of Massachusetts and the owners and operators of the remaining two oil combustion facilities that currently manage their wastes in unlined surface impoundments to ensure that their wastes are managed in a manner that protects human health and the environment.

B. What Were EPA's Tentative Decisions as Presented in the Report to Congress and Why Did EPA Make That Decision?

In the Report to Congress, we stated that the only management scenario for which we found risks posed by management of oil combustion wastes was when oil combustion wastes are managed in unlined surface impoundments. The Report to Congress further explained that we were considering two approaches to address these identified risks. One approach was to regulate using RCRA subtitle C authority. The other approach was to encourage voluntary changes so that no oil combustion wastes are managed in unlined surface impoundments. This voluntary approach is based on recent industry and state regulatory trends to line oil combustion waste disposal units and implement groundwater monitoring.

We also tentatively decided that the existing beneficial uses of oil combustion wastes should remain exempt from RCRA subtitle C. There are few existing beneficial uses of these wastes, which include use in concrete products, structural fill, roadbed fill, and vanadium recovery. We determined that no significant risks to human health exist for the beneficial uses of these wastes. For the case of facilities that accept these wastes to recover vanadium from them, we explained that if the wastes resulting from the metal recovery processes are hazardous, they will be subject to existing hazardous waste requirements.

We found in most cases that OCW, whether managed alone or co-managed, are rarely characteristically hazardous. Additionally, we identified no significant ecological risks posed by land disposal of OCW. We identified only one documented damage case involving OCW in combination with coal combustion wastes, and it did not affect human receptors.

Although most of the disposed oil combustion wastes are managed in lined surface impoundments, we did identify six utility sites where wastes are managed in unlined units. We expressed particular concern with management of these wastes in unlined settling basins and impoundments that are designed and operated to discharge the aqueous portion of the wastes to ground water. Our risk analysis indicated that, in these situations, three metals—arsenic, nickel, and vanadium—may pose potential risk by the groundwater pathway.

C. How Did Commenters React to EPA's Tentative Decisions and What Was EPA's Analysis of Their Comments?

Because we were able to identify so few unlined surface impoundments, the only management scenario for which we found risks, the primary focus of the comments regarding oil combustion wastes was on the six unlined surface impoundments that we identified. In addition, there were extensive comments on our modeling and risk assessment methodology for the groundwater pathway that are applicable to our assessment of risks posed by oil combustion wastes.

1. How Did Commenters React to the Six Unlined Oil Combustion Waste Surface Impoundments That We Identified?

Comments. Industry commenters supported the approach to encourage voluntary changes in industry practices on a site-specific basis, and explained why they believed hazardous waste regulations are unnecessary. The environmental community supported the development of hazardous waste regulations.

EPA's Analysis of Comments. In the RTC, we identified that our only concern about oil combustion wastes was based on the potential for migration of arsenic, nickel, and vanadium from unlined surface impoundments. We requested information on this issue and did not receive any additional data and/or information to refute our tentative finding stated in the RTC that these

unlined surface impoundments could pose a significant risk.

As stated in the RTC, there are only six sites involving two companies that have unlined surface impoundments. Four of the sites are in Florida and are operated by one company. The company operating the four unlined impoundments in Florida is undertaking projects to mitigate potential risks posed by their unlined management units. At a May 21, 1999 public hearing, the company announced its plans to remove all the oil ash and basin material from its unlined impoundments and to line or close the units. The company informed us in January 2000 that it had completed the lining of all the units. Based on this information, we do not believe that these units pose a significant risk to human health and the environment.

The other two sites with unlined impoundments are operated by one utility in Massachusetts. Both sites are permitted under Massachusetts' ground water discharge permit program and have monitoring wells around the unlined basins. Arsenic is monitored for compliance with state regulations. Although the company expressed no plans to line their impoundments, they are preparing to implement monitoring for nickel and vanadium in ground water around the waste management units. We have been working with the State and the company to obtain additional information to evaluate these two management units. We will continue this effort and will work with the company and the State to ensure that any necessary measures are taken so that these wastes are managed in a manner that protects human health and the environment.

2. How Did Commenters React to the Groundwater Modeling and Risk Assessment Analyses Conducted by EPA to Support Its Findings in the Report to Congress?

Comments. Industry and public interest group commenters submitted detailed critiques of the ground water model, EPACMTP, that we used for our risk analysis. Industry commenters believe that the model will overestimate the levels of contaminants that may migrate down-gradient from disposed wastes. Environmental groups expressed the opposite belief; that is, that the model underestimates down-gradient chemical concentrations and, therefore, underestimates the potential risk posed by oil combustion wastes.

EPA's Analysis of the Comments. We are carefully reviewing all of the comments on the model and have determined that the process of thoroughly investigating all of the comments will take substantially more time to complete than is available within the court deadline for issuing this regulatory determination. At this time, we are uncertain of the overall outcome of our analysis of the issues raised in the comments. Accordingly, we have decided not to use the results of our ground water pathway risk analysis in support of today's regulatory determination on fossil fuel combustion wastes. As explained above, we believe that actions have been taken or are under way by specific companies and/or the State of Massachusetts to address potential risks at the six impoundments that we have been able to identify. Therefore we believe that further groundwater analysis is unnecessary at this time.

Meanwhile, we will continue with our analysis of comments on the groundwater model and risk analysis. This may involve changing or restructuring various aspects of the model, if appropriate. It may also include additional analyses to determine whether any changes to the model or modeling methodology would materially affect the groundwater risk analysis results that were reported in the RTC. If our investigations reveal that a reanalysis of groundwater risks is appropriate, we will conduct the analysis and reevaluate today's decisions as appropriate.

In addition to our ongoing review of comments on the groundwater model, one element of the model—the metals partitioning component called "MINTEQ"—has been proposed for additional peer review. When this additional peer review is completed, we will take the findings and recommendations into account in any overall decision to re-evaluate today's regulatory determination.

D. What Is the Basis for Today's Decisions?

We have determined that it is not appropriate to establish national regulations applicable to oil combustion wastes because: (a) We have not identified any beneficial uses that are likely to present significant risks to human health or the environment; and (b) except for two remaining unlined surface impoundments, we have not identified any significant risks to human health and the environment associated with any waste management practices. As explained in the previous section, we intend to work with the State of Massachusetts and the owners and operators of the remaining two oil combustion facilities that currently manage their wastes in unlined surface impoundments to ensure that any necessary measures are taken so that their wastes are managed in a manner that protects human health and the environment. Given the limited number of sites at issue and our ability to adequately address risks from these waste management units through site-specific response measures, we see no need for issuing regulations under subtitle C or D of RCRA.

4. What Is the Basis for EPA's Regulatory Determination for Natural Gas Combustion Wastes?

A. What Is the Decision Regarding the Regulatory Status of Natural Gas Combustion Wastes?

For the reasons described in the Report to Congress (pages 7–1 to 7–3), EPA has decided that regulation of natural gas combustion wastes as hazardous wastes under RCRA subtitle C or D is not warranted. The burning of natural gas generates virtually no solid waste.

B. What Was EPA's Tentative Decision as Presented in the Report to Congress?

The Agency's tentative decision was to retain the subtitle C exemption for natural gas combustion because virtually no solid waste is generated.

C. How Did Commenters React to EPA's Tentative Decision?

No commenters on the RTC disagreed with EPA's findings or its tentative decision to continue the exemption for natural gas combustion wastes.

Specific comments on this issue supported our tentative decision to retain the exemption for natural gas combustion waste. One industry association encouraged us to foster the use of natural gas as a substitute for other fossil fuels. While some public interest group commenters disagreed broadly with our tentative conclusions to retain the exemption for fossil fuel combustion wastes, they did not specifically address natural gas combustion wastes.

D. What Is the Basis for Today's Decision?

The burning of natural gas generates virtually no solid waste. We, therefore, believe that there is no basis for EPA developing subtitle C or D regulations applicable to natural gas combustion wastes.

5. What Is the History of EPA's Regulatory Determinations for Fossil Fuel Combustion Wastes?

A. On What Basis Is EPA Required To Make Regulatory Determinations Regarding the Regulatory Status of Fossil Fuel Combustion Wastes?

Section 3001(b)(3)(C) of the Resource Conservation and Recovery Act (RCRA) as amended requires that, after completing a Report to Congress mandated by section 8002(n) of RCRA, the EPA Administrator must determine whether Subtitle C (hazardous waste) regulation of fossil fuel combustion wastes is warranted.

B. What Was EPA's General Approach in Making These Regulatory Determinations?

We began our effort to make our determination of the regulatory status of fossil fuel combustion wastes by studying high volume coal combustion wastes managed separately from other fossil fuel combustion wastes that are generated by electric utilities. In February 1988, EPA published the Report to Congress on Wastes from the Combustion of Coal by Electric Utility Power Plants. The report addressed four large-volume coal combustion wastes generated by electric utilities and independent power producers when managed alone. The four wastes are fly ash, bottom ash, boiler slag, and flue gas desulfurization (FGD) wastes. The report did not address co-managed utility coal combustion wastes (UCCWs), other fossil fuel wastes generated by utilities, or wastes from non-utility boilers burning any type of fossil fuel. Because of other priorities at the time, we did not immediately complete a determination of the regulatory status of these large-volume coal combustion wastes.

C. What Happened When EPA Failed To Issue Its Determination of the Regulatory Status of the Large Volume Utility Combustion Wastes in a Timely Manner?

In 1991, a suit was filed against EPA for not completing a regulatory determination on fossil fuel combustion wastes (*Gearhart* v. *Reilly*, Civil No. 91–2345 (D.D.C.)). On June 30, 1992, the Agency entered into a Consent Decree that established a schedule for us to complete the regulatory determination for all fossil fuel combustion wastes in two phases:

- The first phase covers fly ash, bottom ash, boiler slag, and flue gas emission control wastes from the combustion of coal by electric utilities and independent commercial power producers. These are the four large volume wastes that were the subject of the 1988 Report to Congress described above. We refer to this as the Part 1 regulatory determination.
- The second phase covers all of the "remaining" fossil fuel combustion wastes not covered in the Part 1 regulatory determination. We refer to this as the Part 2 regulatory determination, which is the subject of today's action. Under the current court-order, EPA was directed to issue the Part 2 regulatory determination by April 25, 2000.

D. When Was the Part 1 Regulatory Decision Made and What Were EPA's Findings?

In 1993, EPA issued the Part 1 regulatory determination, in which we retained the exemption for Part 1 wastes (see 58 FR 42466; August 9, 1993). The four Part 1 large-volume utility coal combustion wastes (UCCWs) are also addressed in the Part 2 regulatory determination when they are co-managed with low-volume fossil fuel combustion wastes not covered in the Part 1 determination.

6. Executive Orders and Laws Addressed in Today's Action

A. Executive Order 12866—Determination of Significance

Under Executive Order 12866, (58 FR 51735, Oct. 4, 1993) we must determine whether the regulatory action is "significant" and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles in the Executive Order."

Under Executive Order 12866, this is a "significant regulatory action." Thus, we have submitted this action to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the public record.

B. Regulatory Flexibility Act (RFA), as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.

Today's action is not subject to the RFA, which generally requires an agency to prepare a regulatory flexibility analysis for any rule that will have a significant economic impact on a substantial number of small entities. The RFA applies only to rules subject to notice-and-comment rulemaking requirements under the Administrative Procedure Act (APA) or any other statute. This action is not subject to notice and comment requirements under the APA or any other statute. Today's action is being taken pursuant to section 3001(b)(3)(C) of the Resource Conservation and Recovery Act. This provision requires EPA to make a determination whether to regulate fossil fuel combustion wastes after submission of its Report to Congress and public hearings and an opportunity for comment. This provision does not require the publication of a notice of proposed rulemaking and today's action is not a regulation. *See American Portland Cement Alliance* v. *E.P.A.*, 101 F.3d 772 (D.C.Cir. 1996).

C. Paperwork Reduction Act Information Collection Requests

Today's final action contains no information collection requirements.

D. Unfunded Mandates Reform Act

Today's action is not subject to the requirements of sections 202 and 205 of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4. Title II of UMRA establishes requirements for federal agencies to assess the effects of their regulatory actions on state, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "federal mandates" that may result in expenditures to state, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year.

Before we issue a rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the rule's objectives. Section 205 doesn't apply when it is inconsistent with applicable law. Moreover, section 205 allows us to adopt an alternative other than the least costly, most cost-effective, or least

burdensome alternative if the final rule explains why that alternative was not adopted. Before we establish any regulatory requirements that may significantly affect small governments, including tribal governments, we must have developed under section 203 of the UMRA a small-government-agency plan. The plan must provide for notifying potentially affected small governments, enabling them to have meaningful and timely input in the developing EPA regulatory proposals with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today's final action contains no federal mandates (under the regulatory provisions of Title II of the UMRA) for state, local, or tribal governments or the private sector. Today's final action imposes no enforceable duty on any state, local or tribal governments or the private sector.

In addition, we have determined this action contains no federal mandate that may result in expenditures of $100 million or more for state, local, and tribal governments, in the aggregate, or the private sector in any one year.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled Federalism (64 FR 43255, August 10, 1999) requires us to develop an accountable process to ensure meaningful and timely input by state and local officials in the development of regulatory policies that have federalism implications. The executive order defines policies that have federalism implications to include regulations that have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

Under section 6 of Executive Order 13132, we may issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that isn't required by statute, only if the federal government provides funds the direct compliance costs incurred by state and local governments, or if EPA consults with state and local officials early in the development of the proposed regulation. Also, EPA may issue a regulation that has federalism implications and that preempts state law, only if we consult with state and local officials early in the development of the proposed regulation.

If EPA complies by consulting, Executive Order 13132 requires us to provide OMB, in a separately identified section of the rule's preamble, a federalism summary impact statement (FSIS). The FSIS must describe the extent of our prior consultation with state and local officials, summarizing the nature of their concerns and our position supporting the need for the regulation, and state the extent to which the concerns of state and local officials have been met. Also, when we transmit a draft final rule with federalism implications to OMB for review under Executive Order 12866, our federalism official must include a certification that EPA has met the requirements of Executive Order 13132 in a meaningful and timely manner.

Today's final action does not have federalism implications. It will not have a substantial direct affect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This is because no requirements are imposed by today's action, and EPA is not otherwise mandating any state or local government actions. Thus, the requirements of section 6 of the Executive Order do not apply to this final action.

F. Executive Order 13084: Consultation and Coordination With Indian Tribal Governments

Under Executive Order 13084, EPA may take an action that isn't required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, only if the federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires us to describe in a separately identified section of the preamble to the rule the extent of our prior consultation with representatives of affected tribal governments, summarizing of the nature of their concerns, and state the need for the regulation. Also, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's final action does not significantly or uniquely affect the communities of Indian tribal governments. This is because today's action by EPA involves no regulations or other requirements that significantly or uniquely affect Indian tribal governments. So, the requirements of section 3(b) of Executive Order 13084 do not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

"Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the planned rule on children and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

Today's final action isn't subject to the Executive Order because it is not economically significant as defined in Executive Order 12866, and because we have no reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. Risks were thoroughly evaluated during the course of developing today's decision and were determined not to disproportionately affect children.

H. National Technology Transfer and Advancement Act of 1995

As noted in the proposed rule, section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law. No. 104–113, section12(d) (15 U.S.C. 272 note) directs EPA to use voluntary-consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law or otherwise impractical. Voluntary-consensus standards are technical standards (such as materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary-consensus standards bodies. The NTTAA directs us to explain to Congress, through OMB, when we decide not to use available and applicable voluntary-consensus standards.

Today's final action involves no technical standards. So, EPA didn't consider using any voluntary-consensus standards.

I. Executive Order 12898: Environmental Justice

EPA is committed to addressing environmental justice concerns and is assuming a leadership role in environmental justice initiatives to enhance environmental quality for all populations in the United States. The Agency's goals are to ensure that no segment of the population, regardless of race, color, national origin, or income bears disproportionately high and adverse human health or environmental impacts as a result of EPA's policies, programs, and activities, and that all people live in safe and healthful environments. In response to Executive Order 12898 and to concerns voiced by many groups outside the Agency, EPA's Office of Solid Waste and Emergency Response formed an Environmental Justice Task Force to analyze the array of environmental justice issues specific to waste programs and to develop an overall strategy to identify and address these issues (OSWER Directive No. 9200.317).

J. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, does not apply because this action is not a rule for purposes of 5 U.S.C. 804(3). Rather, this action is an order as defined by 5 U.S.C. 551(6).

7. How To Obtain More Information

Documents related to this regulatory determination, including EPA's response to the public comments, are available for inspection in the docket. The relevant docket numbers are: F–99–FF2D–FFFFF for the regulatory determination, and F–99–FF2P–FFFFF for the RTC. The RCRA Docket Information Center (RIC), is located at Crystal Gateway I, First Floor, 1235 Jefferson Davis Highway, Arlington, VA. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding Federal holidays. To review docket materials, it is recommended that the public make an appointment by calling 703-603–9230. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost $0.15/page. The index and some supporting materials are available electronically. See the Supplementary Information section for information on accessing them.

List of Subjects in 40 CFR Part 261

Fossil fuel combustion waste, Coal combustion, Gas combustion, Oil combustion, Special wastes, Bevill exemption

Dated: April 25, 2000.

Carol M. Browner,

Administrator.

[FR Doc. 00–11138 Filed 5–19–00; 8:45 am]

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May 19, 2011

Mr. Scott Segal
Director
Electric Reliability Coordinating Council
2000 K Street N.W., Suite 500
Washington, D.C. 20006-1872

Dear Mr. Segal:

Thank you for appearing before the Subcommittee on Energy and Power on Thursday, April 7, 2011, to testify at the hearing entitled "The American Energy Initiative."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and then (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Thursday, June 2, 2011. Your responses should be e-mailed to the Legislative Clerk, in Word or PDF format, at Allison.Busbee@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: The Honorable Bobby L. Rush, Ranking Member,

Attachment

Subcommittee on Energy and Power
The American Energy Initiative
April 7, 2011
Additional Questions for the Record

The Honorable Jay Inslee

1. You serve as the director of an entity called the Electric Reliability Coordinating Council (ERCC), which is self-described as a "broad-based coalition of power companies." Please provide a list of companies that are part of the ERCC coalition.

Subcommittee on Energy and Power
The American Energy Initiative
April 7, 2011
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   1) Ameren Corporation
   2) Arch Coal, Inc.
   3) DTE Energy
   4) Duke Energy
   5) Energy Future Holdings
   6) Progress Energy
   7) Salt River Project
   8) Southern Company

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